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EXPRESSIVE PHYSICAL CULTURE

OR

PHILOSOPHY OF GESTURE.

BY

CHARLES WESLEY EMERSON.
Founder of the Emerson College of Oratory,
BOSTON, MASS.

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TO

My Wife,

WHOSE EFFORTS HAVE MADE
THIS BOOK POSSIBLE

134533

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Great men are they who see that spiritual is stronger than any material force; that thoughts rule the world. — *EMERSON.*

⁂

Truth is within ourselves; it takes
From outward things no rise, whate'er you may believe.
There is an inmost center in us all,
Where truth abides in fullness; and around
Wall upon wall, the gross flesh hems it in,
This perfect, clear conception, which is truth, —
A baffling and perverting carnal mesh
Binds it and makes all error; and to know
Rather consists in opening out a way
Whence the imprisoned splendor may escape,
Than in effecting entry for a light supposed to be without.

— *BROWNING.*

THE PHILOSOPHY OF GESTURE.

"*For there is nothing covered that shall not be revealed.*"

"THE heavens declare the glory of God and the firmament showeth his handiwork." The universe is the externalization of Divine Being, of which all nature as a whole and in its parts is a symbol. Every visible thing is a manifestation of the Mind of God. To the poet's mind a star is not simply a planet hurled by invisible force along its shining path through the heavens; it is an expression of the universal Mind, an expression of the Over-Soul, of God's infinite love. Like the ancients, the poet sees the stars, as loop-holes, through which he can look into the world of light beyond.

The astronomer studying the movements of the planets, the geologist studying the formation of the crust of the earth, is not interested in matter alone, but in the manifestation of Mind through the laws which govern matter. The higher order of human mind sees all nature as manifestation of the Divine Mind. All material things around him speak of the presence of Deity. To him God is immanent in all the objects of the earth. To him the rocks, the clouds, the star, the the bird, the flower, each in its own peculiar way, eloquently proclaims the mind of the Creator. To him,

> "God is seen God
> In the star, in the stone, in the flesh, in the soul and the clod."

"Man is the last and highest manifestation of Divine Energy, the fullest and most complete expression of God." Man is but an instrument; God is the motor power. The human body, which the inspired writer has called the "temple of the Holy Ghost," is but a medium through which the Divine Mind moves out upon the world.

Every hidden thing shall be revealed. "That which ye have spoken in the ear in closets shall be proclaimed upon the housetops." These are statements of universal law, not merely special prophecies in relation to certain classes, or to particular events in the history of the world. These laws are as universal in their application, as Christ's statement of the law of compensation, "With what measure ye mete, it shall be measured to you again." The teachings of Christ are a revelation of the laws by which God governs the universe. When Christ tells us that "Whatsoever ye have spoken in darkness shall be heard in the light," he is again announcing a law of the moral and spiritual nature of man.

What is innermost ultimately becomes outermost. What is at the center is finally revealed upon the surface. The gold and precious stones which for countless ages have been hidden in the depths of the earth, are being brought to light; even old ocean is yielding up its treasures. The heavens with their myriad stars are unfolding like a scroll, opening themselves to the mind of man. It is a law of nature that what is active in any organism shall manifest itself outwardly. This principle is illustrated throughout the vegetable kingdom. The exquisite color and perfume of the rose which are locked in the embrace of its folded leaves, in due time will be expressed in the blossom. The same principle is also verified in the animal kingdom.

The voices, the attitudes and movements of all animals reveal their natures, their tendencies and their habits. The lion, the king of beasts, in every way reveals his devouring instincts. He has always lived by devouring other animals, and has thereby developed greater and greater power to destroy; this power is strongly expressed in the form of his jaw, in the fierce gleam of his eye, and in the strength of his legs, chest and shoulders. In both movement and repose, the lion nature — the carnivorous tendency — is revealed.

This law operates with equal force in relation to man. The soul of man is forever seeking expression: it beats at the doors and windows of his physical being, and externalizes itself in action. What a man is, "engraves itself on his face, on his form, in letters of light which all men may read. . . . A man may play the fool in the drifts of a desert, but every grain of sand shall see. He may be a solitary eater, but he cannot keep his foolish counsel. A broken complexion, a swinish look, ungenerous acts, and the want of due knowledge, — all blab." What is innermost shall be outermost. No man really hides his character; no man really hides his habits; howsoever he may try to do so, he is not successful. "Every spirit makes its house, and we can give a shrewd guess from the house to the inhabitant." A man draws his portrait with every word he utters. Not only does the spoken word reveal his character, but his every movement is an expression of the innermost impulses of his being. He not only expresses his inner life by *what* he does, but by the *way* he does it. All people cannot truthfully interpret the revelation of this inner life, but character is constantly being expressed, whether the sign can be read or not. "A main fact in the history of manners is the wonderful expressiveness of the human body. If it were made of glass, or of air, and the thoughts were written on steel tablets within, it could not publish more truly its meaning than now. Wise men read very sharply all your private history in your look and gait and behavior. The face and the eyes reveal what the spirit is doing, how old it is, and what aim it has. The whole economy of nature is bent on expression."

One might as well put his hand on Niagara Falls, and say to the giant waters "cease thy flowing," as to try to stay the expression of what is within. The language by which man's inner life is read, is that of the two natural avenues of expression, *voice* and *gesture*, the twin powers by which man reveals the entirety of his being. (The subject of voice is fully considered in Psycho Vox (The Voice of the Soul).) Our attention at this time turns to the consideration of gesture as one of the natural means by which the individuality and personality of man is revealed.

EVOLUTION OF GESTURE.

"The individual repeats in himself the history of the race." Mind manifests itself on higher and higher planes of activity, both in man and in animals, according to their advance in development. The gestures of the lower order of animals are those of drawing to themselves, rejecting, or destroying. The basic impulse of action in physical life is demand for food. This is the chief characteristic of protoplasmic life, and the first demand to be supplied.

THE PHILOSOPHY OF GESTURE.

In the first forms of animal life, no implement for acquiring food is provided except the body itself, which lengthens out to seize its food, then returns into itself. Higher in the scale of development are found little portions of the body permanently lengthened for this purpose. Upward through the scale, these lengthened portions assume more and more distinct form according to the use and demand of the organism, until, in man, is found that wonderful piece of mechanism, the human hand, used not alone for seizing food and for defending man from danger, but for the most skilled labor, and for acts of kindness and benevolence.

The movements of the animals in the lower forms of development, and of man in the first stages of his evolution, are characterized by simple acquisition. But from the gestures of taking and resisting, as noticeably seen in the young child, who but repeats in himself the history of the race, are evolved the gestures of bestowing and protecting. Instead of being used simply as a claw to draw in or to destroy, the hand is opened in giving and revealing.

Gesture, which is a universal language marks, if not the first point of evolution, the very early stages of language development. Before speech is acquired, the infant has no difficulty in making known its likes and dislikes, its needs and wishes. Its movements speak in unmistakable language, and with beautiful spontaneity. It needs no teacher of gesture; its desires and purposes are revealed with a naturalness and simplicity which are the despair of riper years, when the art of speech has been acquired.

The gesture language of infancy is nature's language; the language of the birds and animals of the forest; the language of the primitive races. "The wishes and emotions of very young children are conveyed in a small number of sounds, but in a great variety of gestures and facial expressions. A child's gestures are intelligent long in advance of speech; although very early and persistent attempts are made to give it instruction in the latter, but none in the former. . . . It learns words only as they are taught and learns them through the medium of signs which are not expressly taught. Long after familiarity with speech, it consults the gestures and facial expressions of its parents and nurses as if seeking them to translate or explain their words."

As the word language develops in the race and in individuals, the necessity for communication by gesture diminishes, but never ceases. Gesture will always be an important supplement to word expression. The gestures of a cultivated orator or an interpreter of literature, are comparatively few in number, but none the less necessary or effective in the communication of his thought.

The more highly educated the individual, the more definite and concerted, and consequently the less observed are his gestures, hence in the cultured speaker the attention of his hearers is never called to his gestures as such, but only to the thought, feeling or purpose communicated by them. As stated by Herbert Spencer, "There is an entire correspondence between the moral evolution and evolution as physically defined. Conduct as actually known to us in perception, and not as interpreted into the accompanying feelings and ideas, consists of combined motions. On ascending through the various grades of animate creatures, we find the combined motions characterized by increasing coherence and increasing definiteness, and in advancing from the lower to the higher type of man, as well as in advancing from the moral to the more moral type of man, those traits of evolving conduct become more marked still."

No invention of man can prevent him from manifesting what he is. The man who is living for self cannot give the gestures of one who is living for others. Water cannot rise higher than its source; a speaker cannot successfully imitate the gestures of one who lives higher than himself, — nature shows them to be false. Nature will not be thwarted, for she is omnipotent.

The plane of a man's gestures cannot be changed until there is a change in the plane of his being. A person ~~can~~ never *ex*press what has not first been *im*pressed. As the human mind grows to heights of development, its growth is reported in unmistakable language. The soul has a language of its own, and as the soul develops, its language develops, — a language which did not originally produce thought; but which was produced by thought. The history of human expression is the history of the development of the human soul. The art of the Egyptians, colossal and grand, was an externalization of their concepts concerning nature and deity; the art of the Greeks aesthetic and suggestive, also revealed their concepts of nature and of deity. The orator carves not in marble, but in air, his inward thoughts and purposes, and through this medium reveals to his audience his relation to his environment and to the author of his being.

"When God's unspoken echoes strike the organism of the soul, by their spiritual beauty influencing and exalting it, the result is eloquence, oratory, poetry, prophecy, divinity in man." If the mind of an orator is lifted into the realm of goodness, truth, or beauty, the air, vibrating with his soul's message, communicates it to his audience, until their minds are thrown into sympathetic vibration with his own. "It is the divinity within that makes the divinity without." Whether we would or not, we communicate to other souls, through the medium of voice and gesture, the character of the impulses that vibrate in our own.

As Mr. Mazoomdar, when speaking to the students of this college, fittingly said, "Let God abide in your soul and then you will speak words, think thoughts, and express feelings, which will turn your country into an abode of angels."

SPECIAL PROVINCE OF GESTURE.

Drummond, in his Ascent of Man, tells us that "Gestures are suggestions and reminders of things seen and heard." They are largely developed, first by holding in the mind something that is not present to the senses; and second, by the desire to communicate an idea of that absent something to other minds.

Drummond suggests that gestures for the purpose of communication form the bond of union between animals of gregarious habits. Among herds of deer, colonies of ants, troops of monkeys, and flocks of birds, gesture is the language in which are written their contracts of agreement and laws of governing. The foremost deer of the herd, hearing a sound, raises his head in such a way as to communicate the idea of danger to his fellows. The ants hold consultation together, conveying their meaning by the gestures of the irantennæ. A wild partridge, when suddenly startled, makes such a movement as will cause her little ones to hide in silence while she, in order to cover their retreat, walks off in an opposite direction. A stampede among horses is sometimes caused by the fright of one horse, which is communicated by his movements to other horses. This process of co-operation among animals and insects results from their ability to communicate by gesture, and strengthens and preserves the species.

Communication by gesture is very evident among domestic animals. The house cat has no difficulty in making known her feelings to another cat or to a dog. Very definite and unmistakable is the language written in the cat's face or expressed by the motions of her tail and the elevation of her back. The dog expresses by his wagging tail and eager bounds evident pleasure at the sight of his master or his little play-fellow.

Gesture is one of the means by which the mind of man communicates its particular forms of activity to other minds. *It is that appearance of the body in its entirety or in its parts which communicates the states of the gesturer's mind to the minds of others in such a way as to occasion in them corresponding activities.*

The desire on the part of the speaker to have others think, feel and purpose as he is thinking, feeling and purposing, is the leading impulse from which spring those movements that are classed under the special province of gesture, namely, the communication of thought to other minds for the purpose of occasioning in them definite mental activity.

Gesture communicates thought through the sense of sight to the "seeing mind." How much significance there is in the familiar words: "The sight of mine eyes affect my heart." An audience is influenced not only by hearing a speaker, but also by seeing him. An attitude, a look, a movement is often so subtle and suggestive as to hold an audience captive by its magic power. All art acts upon the mind through the senses. One may be said to be an artist when he can voluntarily transfer his states of mind to others, through the medium of his art. In the measure that he can do this, he is nearing perfection in his art.

A great orator occasions the mental activity of his audience to take the same direction as his own. His gestures should reveal to his audience not merely what he is thinking about, but should be an aid in causing their minds to act in the direction which he desires. When once asked the secret of his success, Wendell Phillips replied, "I am determined to make other people think as I think, — to make my audience see the same truth that I see." In speaking of the power of Mr. Phillips, a person who had been opposed to his politics said, "When I listened to him I thought just as he did, but after thinking it over at home, what he said seemed untrue, and I thought, 'I will not be misled when I hear him again;' but again I listened, and again I believed, until now I am convinced that he was an advocate of the right principles of action."

An orator's gestures may occasion in the minds of his audience the same thoughts he is thinking, without a knowledge on their part that he is thinking those thoughts. A gesture does not merely enable others to know what the *gesturer* is thinking; it influences other minds to think the thought which the gesture conveys. An orator, speaking of the honor and reverence which he feels for Abraham Lincoln, may speak with sufficient power to convince the audience that *he* honors Lincoln, but this is not enough; he should make the *audience* honor and reverence Lincoln. One can easily make motions that will enable another to understand what *he* is thinking about, but the especial province of gesture is to cause others to think as the gesturer thinks, to feel as he feels, and will as he wills. Thus, through gesture, the minds of speaker and audience act as one.

An activity, started in the speaker's mind, is transmitted by means of gesture to other minds, as the click of one transmitter is communicated over telegraphic wires to another transmitter. Gesture joins mind to mind, so that the speaker may be said to think not only in his own brain, but in the brains of others. Through this transaction, hope that is in him becomes hope in others; fear in him becomes fear in others; love in him becomes love in others; acts of conscience in him become acts of conscience in others, until he and his audience become one in thought, feeling and purpose.

THOUGHT CREATES FORM.

Mind creates its own form of expression. When the body is cultivated to responsiveness, the right mental activity will create the right gesture.

Gesture is a spontaneous muscular response to mental activity. It is as natural an expression of mind, as the fruit is of the tree which bears it. An orange expresses the nature and life of an orange tree; but if an orange be tied to a spruce tree, it will not be an expression of that tree. A set of artificial gestures may be learned, but they do not belong to the individual; they are counterfeit. "Nature forever puts a premium on reality. What is done for effect is seen to be done for effect." Pretense is revealed as pretense, and has in it no power to move other lives toward good.

It has been observed that persons acting under the influence of definite states of mind, make certain spontaneous movements. These observations have been noted and compared, until certain criteria of gesture have been formulated. To the expert, it is possible by these criteria, to read, in great measure, the mental states of others.

Many have believed that the knowledge of certain outward forms, as those of command, fear, defiance, hope, etc., and the ability to assume these forms at will, would reveal the desired thought to another, and have taught the traditions of gesture, rather than a system for the development of the natural powers of muscular expression. Knowing the meaning of a particular gesture, will not, of necessity, cause one to make better or truer gestures; but drill in such exercises as develop the natural tendency of the body to responsiveness to the highest states of mind, will enable a person to grow in beautiful and effective expression.

A good teacher of any branch of education should possess, first of all, a thorough knowledge of his subject. A teacher of expression should have a thorough knowledge of the mental significance of gesture, as well as a method for the development of right gesture; for by this knowledge he will be aided in reading the mind of his student, and in placing before him correct objects of thought. The true teacher reads the student's mind, not by his words alone, nor by the quality and slides of his voice, but by his bearing, his attitudes and his movements. To thus sympathetically interpret the pupil's mind, is one of the necessary qualities of the teacher of expression.

True education deals with cause, while superficial education seeks to produce a right effect without dealing with the cause, in the proper way. Mind is the cause; expression, either by voice or gesture, is an effect. This being true, it is the tendency of right states of mind to produce right effects, and wrong states of mind to produce wrong effects. The teacher should be able not only to discriminate between that which is right and that which is wrong; but he should also be able through definite systematic methods, to train the student's mind to concentrate at will upon the right objects of thought, and to train his body to respond to these mental objects.

There is no educational value in making artificial gestures. In order to make right gestures, the mind must be cultivated to act rightly, at the right time, and must be given an unhindered medium through which to externalize its impression. Faults in gesture sometimes proceed from a wrong activity of mind, sometimes from lack of bodily culture, and sometimes from both. Instead of trying to imitate the gestures of a great orator; one should develop in himself the same activities of mind which inspired a Phillips, a Demosthenes, a Burke or a Beecher. In this way, the study of gesture has an educational value which cannot be estimated, for it deals with the sources of power in the individual, and teaches him to become one in thought, feeling, purpose and action with the great masters of speech.

Faults

By a movement of his hand, so slight as to attract no attention to itself, Phillips could move an audience of thousands as easily as the waves of the sea are moved by the wind. Where did he learn his gestures? In the school of Sincerity, in the school of Truth. The soul says, "I am ready to be affected and I will respond to anything that is genuine, but I will never be governed — though I may be amused — by those who try to imitate the genuine." The student of gesture should become, and in the ratio of his success, is, the most *real* of persons, the most genuine, the most self-commanded.

A person's gestures are greatly modified by his temperament. Some are born with a sensitive, responsive organism which quickly reports in muscular action any mental state. Persons of phlegmatic temperament have a tendency to make comparatively few movements, while those of more active temperament have a tendency to make many more. The individuality of a speaker is betrayed by his gestures just as the individuality of a painter is revealed in each of his works, making, as has been said, "each picture an autobiography of the artist." It is not the number of gestures, but their quality and truthfulness, which concerns the student of expression. Any expression of voice or gesture that is not spontaneous, is a hindrance to the effectiveness of expression; not only this, — it in time destroys whatever of natural ability the individual possesses. Van

Dyke, in his Principles of Art, says, "It is not the work but the worker; not the mold but the molder; not the paint, but the painter. Imitation is the elimination of the individual." The gestures of an effective speaker can no more be dictated to him than can the conception of a plot be dictated to a novelist, — to a Dickens, a Scott, or a George Eliot. An artist is a revealer of truth, and his creation is an expression of an impulse from within; otherwise he becomes a mere mechanical lens photographing the character of another. "The man lives in his art as the soul lives in the body. Strike out one, and the other is but worthless clay."

The following illustrates a common experience among those who have attempted to develop their powers of expression by artificial methods: a few years ago a gentleman said to a public audience, "For many years I had a successful public career as a reader. I had all the engagements I could fill, and was everywhere received well. I was told that if I would perfect my powers, I could do still greater things. For years I put myself under careful training as to just what gestures, just what tones of voice I should give for the perfect expression of a thought, and the result is that the public has not wanted me since."

It is fatal to the development of one's powers of expression to make his gestures an object of thought while speaking. While some students of expression believe that thought creates form, they forget that each fresh thought creates a fresh form; therefore they attempt to fossilize some form which their thought has taken, and hold it as an object of thought before the mind. By so doing, students build strong walls around themselves, and cannot progress until their method of work is changed. A person who works by such a method puts on, as it were, borrowed clothing. He fights as the king of Israel would have had David fight, in borrowed armor. Let us, like David, refuse the armor which trammels; let us develop the highest power of body and soul; then with the stones of thought we can strike down the giants of falsehood, injustice and selfishness, as easily as David slew the gigantic enemy of Israel.

One may repeat the same general idea, *ad infinitum*, but around the idea, there will cluster different associations which vary the lights and shades of thought, feeling and purpose, and the same variety should appear in the expression of these thoughts, feelings and purposes. The elder Salvini was a striking example of this. I watched his work in Othello carefully, but never saw him give an exact reproduction of certain effective gestures. In this fact lay one of the secrets of his great power. The gestures of a cultivated orator or actor, while expressing essentially the same thought, will be as far from fixedness of form, as evanescent in shading, as the changing colors of the rainbow, or the floating clouds which deck the sky on a summer day. Nature never repeats. The sunset of to-night is not an exact reproduction of the sunset of yester-night. The waters of the sea do not repeat their shades of coloring. Nature is forever flowing, and in her flowing forever creating anew. So each time a person thinks upon a subject, there is a shade of difference in the thought, although it may be approximately the same. That shade of difference in the thought, naturally produces a difference in the form of expression.

The gestures of the great orator spring from a vital necessity of his thought. Such gestures flash clear visions of truth, which even the deaf may understand without the aid of words and tones. Any gesture that is artificially made, is a hindrance to true expression, and never awakens a response in the minds of others. It lacks the life born of the spirit. A gesture should be simultaneous with the thought; to be effective, it must be born of the *now*, i.e., of the activities of the mind of the speaker which take place at the moment of expression. We know of its birth by the mysterious life of its manifestation. It may be "born again" and yet again, but at the time of repetition it must be a spontaneous expression of the mind. Form without spirit is void and meaningless; it carries no convictions, but is "stale, flat and unprofitable," leaving the minds of those who see the form as vacant as the form itself. All words, however beautifully spoken, are as empty vessels when accompanied by artificial gestures. "The letter killeth, but the spirit giveth life." The soul of expression lies in impulse. When the impulse is profound, the expression is profound. When it is all artifice and mechanics and imitation, it is as sounding brass and tinkling cymbal. Where the soul is barren, the inner eye blind, the inner ear deaf, not all the vocabularies of the world will teach one how to make his impression. "It is the spirit and not the fact that is identical. By descending far down into the depths of the soul, and not primarily by a painful acquisition of manual skill, the artist attains the power of awakening other souls."

RELATION OF IMAGINATION TO GESTURE.

All forms of real culture have to do directly or indirectly with the imagination. This power is one with which gesture, and indeed all expression, is vitally concerned.

"Imagination is the power of representing a mental product as an image. Whenever any idea is embodied as an image, the result is the work of the imagination." (Halleck.)

"The mental power whose activity combines thoughts of parts of different wholes so as to form a thought of a new whole unlike any ever observed, is the imagination." (Dickinson.)

"Imagination may be defined as that operation of the intellect which embodies an idea in a particular form or image." (Dewey.)

Imagination, then, is that power by which the mind creates an image of its own concepts. It makes mental objects as patent to the mind, as material objects are to the senses. In gesture, one instinctively acts toward a mental image, as one would act toward a similar object patent to the senses. The gestures of presentation and repulsion, so common in conversation, suggest exactly the same movements as are made in literal presentation or repulsion of material objects. The idea of terror tends to induce the same attitudes and movements as if the physical object of terror were present. So with the idea of love, reverence, etc. Spencer says, fear, when strong, is accompanied by certain expressions, and "these same expressions accompany an actual experience of the evil feared." In Gesture, we deal with mental objects as though they were patent to the senses, not because we calculate to do so, but because nature has so decreed.

Gestures deal with images in the speaker's mind. He lives in various experiences, furnished by his imagination, and the expression in gesture of these experiences occasions the same images and experiences in the minds of the beholders.

While it is true that gesture deals with mental images in exactly the same manner as if they were material objects, it must not be supposed that the speaker is to present these images in a literal way. Art does not deal with the literal, but with the suggestive. Images may be truthfully, yet suggestively, presented through gesture. Art presents, as Van Dyke says, "the truth, but not the whole truth; rather a line, a shade, a mass, which the eye may grasp and fill out by the aid of the imagination." The artist, by a few delicate touches with his brush or pencil, may suggest more to the imagination than the untrained hand, by much painstaking labor.

> "Strive not to say the whole;
> The poet in his art
> Must intimate the whole,
> And say the smallest part."

The orator is a sculptor carving in air the thought images which he wishes to present. He appeals to the imagination of his audience by suggesting, through voice and gesture, what is not literally told. It is the relation of the said to the unsaid which produces the desired effect. If the gestures of an orator are artistic, he suggests the form of his thought by a line here and a line there, seeing which, the beholder instantly, without effort, and without necessarily being conscious of his own mental processes, conceives the idea which the orator is endeavoring to present. Such gestures have the power to make others think. They not only suggestively present images of the speaker's thought, but constantly call forth the mental activities of the hearer and beholder. The images suggested by the speaker, are filled out by the imagination of the hearer.

An effective gesture is so subtle, that persons who are influenced by it may not be conscious of having perceived that the speaker made a gesture. Gestures that are most effective, most spontaneous, that result from the spirit of the theme, call no attention to themselves. The most effective gestures are those made unconsciously to the speaker, and are unobserved by the listener.

"Forms are used for the purpose of conveying ideas, and the simpler and truer they are, the easier will they be comprehended, no matter how great the idea. The grandest revelation ever brought to the human mind came in the simple form and language of the Gospels, and it were well if all art and all life would emulate that simplicity."

HINDRANCES.

The question might be asked, "Since gesture is the *natural* expression of mind through the muscles, why is it necessary to study or practice exercises for the purpose of effective expression through gesture?" The answer lies in the fact that all organic nature demands education in agreement with its tendencies, and all tendencies require education for their perfect development. Through education, tendencies blossom into fulfillment.

The horticulturist, by bringing to bear the right influences and conditions for the growth of a plant, assists nature in unfolding the highest possibilities of plant life. Every plant is susceptible of culture along the line of its natural tendencies. The horticulturist does not determine the tendency, he merely assists in its fulfillment.

Without proper culture no one can fulfill his highest possibilities, and one of the aims of true education is the elimination of hindrances, to the end of developing the potential beauty, truth and good in human nature.

Emerson says, "'Tis inhuman to want faith in the power of education, since to meliorate is the law of nature." We have but to consider the physiology of habit, upon which all scientists are agreed, in order to see that the meliorating force of education applies to the body as well as to the mind. A good thought, a good impulse, once carried into execution, paves its path, so that it is easier to put it into execution a second time. The physical expression of a noble purpose renders the body more habitually responsive to the same high impulse, hence the necessity of frequent repetition — of drill. In advocating continuity of drill, Emerson relates the following: "An engineer pounded with a hammer on the trunnions of a cannon, until he broke them off. He fired a piece of ordnance some hundred times in swift succession, until it burst. Now which stroke broke the trunnion? Every stroke. Which blast burst the piece? Every blast."

Among the hindrances to be overcome by right bodily education, should be mentioned those which result from wrong muscular habits. Our habits being formed, either make or unmake us; they are the creators of our successes or our failures. When forming a wrong habit one does not realize what a giant the habit may become. Mrs. Shelley, in "Frankinstein," tells of a student of science who succeeded in creating the form of a man, and infusing it with life. This abnormal, colossal being, shut off from the human sympathy which it craved, and having no sense of moral responsibility, was very dangerous. He became the destroyer of those who were dearest to his creator, and indirectly of his creator himself. So it is with our habits. We form them, we give them life by repetition, and sometimes they are of such a character as to turn and rend us.

Students under the influence of wrong muscular habits, have a tendency to make the same movements every time they read or speak, no matter what the sentiment may be. According to Spencer, "Feeling, passing a certain pitch, habitually vents itself in bodily action, and an overflow of nerve force, undirected by any motive, will manifestly take first, the most habitual routes." The tendency to habitual action is so universally recognized, that man has been called a "bundle of habits," In the body, as well as in the mind, the present is the resultant of the past. In illustration of this idea, Professor James has said, "An acquired habit, from the physiological point of view, is nothing but a new pathway of discharge formed in the brain, by which certain incoming currents ever after tend to escape."

Dr. Carpenter, in speaking of the influence of habit upon the character of dreams and the movements of somnambulists, says that in all such cases, "the automatic action follows the course of habitual lines of thought, and expresses the result of the previous training and discipline of the intellect, which has been carried on under volitional direction." This might explain the power of a poet like Coleridge, who would often times awake from sleep with hundreds of consecutive lines of poetry in his mind, which flowed from his pen as rapidly as he could write the words. His mind, in sleep, followed the habitual trend of his waking hours.

The physical organism, by its nature and structure, tends to repeat muscular actions which have once been made for a purpose, even after the purpose ceases to dominate. While waiting at a railroad station, I saw an interesting illustration of this principle in the movements of a horse. At first glance he seemed to be drawing a very heavy load, but on looking further I saw that he was drawing no load at all. His movements were evidently the result of muscular habits which had been formed by his being used exclusively, and for a long time, in drawing heavy weights over the same level road. The muscles, suiting themselves to this necessity, had become fixed in their action, so that now, even though relieved of the burden, the effort of the past revealed itself in every movement.

Persons who have followed certain lines of labor, as the farmer, the wall-layer, the shoemaker, the blacksmith, and those, too, of sedentary habits, often develop certain dominating muscular habits. Take, for example, the man who is accustomed to sewing boots in the old way, by hand. When such a man speaks, the habitual manner in which he uses the muscles, will often bias his gestures when he is trying to reveal some point of thought. I once knew a shoemaker, who, when speaking of a sentiment entirely foreign to his work, would, by his movements, suggest putting in the awl, putting in the waxed ends and pulling them through, often repeating the gestures as if to clinch his argument. Such gestures were not true to the sentiment he was uttering, but were true to his previous muscular habits. A certain public speaker of note, who in his earlier years had labored as a blacksmith, had a habit of giving emphasis to his thought by a peculiar movement of his arm, as though striking the iron on the anvil with his hammer. This movement characterized all his gestures, whether he was speaking of the evils of strong drink, the rights of humanity, or the beauty of his native hills. Muscular habit contracted by one who sits much at a desk to write, often so binds the muscles of the chest as to greatly hinder the free expression of thought through gesture.

There are muscular habits developed by certain *abnormal physical conditions.* Sometimes a person during illness or convalescence, will establish certain habits which, if not corrected, will remain with him through life. Such a person's gestures, long after the disease has disappeared, may be biased by the habit thus contracted. Persons who have had weakness or disease of the eyes, often retain a fixed habit of frequently blinking their eyes, after the affection has disappeared.

There are also muscular hindrances from *inherited tendencies.* "It is characteristic of every living organism to build itself up in a certain inherited type," but this type can often be greatly modified by the influence of external conditions,—by the influence of mental and physical culture, the demand for which is inherent in the constitution of every individual.

Acquired tendencies toward certain muscular habits are sometimes transmitted from one generation to another. Certain habits of gesture are handed down from ancestors, and perpetuated in the descendants. Darwin quotes an interesting illustration of an inherited tendency of this kind which was transmitted through three generations. A gentleman, when sleeping upon his back, had a curious habit of bringing up his right arm and then letting it fall, striking the bridge of his nose with his wrist. This habit would stay with him for weeks together, and then disappear for a time. When it was upon him he suffered much from the injury to his nose, and tried to overcome the habit by tying his right arm, but the tendency persisted in returning. This same habit was manifested, under the same conditions, by the son of the gentleman, and in later years by the daughter of the son. The fact that this occurred in sleep, proves that it was an inherited tendency and not one gained from imitation. Another example from the same writer is the following: A little English girl whose grandfather was a Frenchman whom she strongly resembled in countenance, bore another striking resemblance to her Parisian grandparent, namely, the practicing of a singular gesture. When she felt impatient for something she very much wanted, she would hold out her little hand and rapidly rub her thumb and first two fingers together, a habit which had been peculiar to her French ancestor.

Darwin has observed the manifestation of inherited muscular tendencies in animals, and in this way accounts for the pacing of horses and pointing of dogs. Similarity in the handwriting of children and parents, and the gift of drawing and of piano playing, sometimes manifested in very young children, are, by well-known psychologists, accounted for in many observed cases by the transmission of acquired tendencies by heredity.

It cannot be said that all inherited habits are hindrances to free expression, for a normal as well as an abnormal tendency may be inherited; but when hindrances have been inherited they may be overcome by culture. Education is the vast affirmative, "there is no darkness but ignorance, there is no light but intelligence." Before the onward march of true methods of education, hindrances, false habits, etc., melt as the snow before the dissolving rays of the sun. Then, again, it should be remembered that we have two lines of ancestry, the one human, the other divine. "No legacy of sin annuls heredity from God," and from Him we inherit all things good, including health, grace and beauty.

Muscular habits are often established by unconscious *imitation.* Children are quick to observe and to imitate, and often grow into small likenesses of the older people with whom they are constantly associated. By imitation, the unfortunate habit of stammering, and the defect of cross eyes, are in many cases contracted. The more abnormal and eccentric a habit or movement, the more surely it will be imitated by the child, because it is held more consciously before his mind. The body, as well as the mind, has a tendency to grow into a likeness of what the mind habitually contemplates.

Muscular habits formed by *wrong or limited mental concepts* sometimes form a hindrance to true gesture. In early life a person may have very imperfect concepts, and his muscles, conforming to these concepts, develop certain habits of expression. Later in life, when the mental horizon has been widened by study and experience, he has larger concepts of truth. But because of the lack of proper development of body as well as mind, the habits of his body, being fixed in the expression of limited concepts, hinder the free expression of his grander thoughts. Thus we sometimes see men of great thoughts giving gestures of a childish character. Such persons have established certain muscular habits which have not been eliminated by a study of physical expression commensurate with their study of other things.

Another hindrance to free and truthful expression arises from the *wrong attitude of the speaker's mind toward his audience.* When the student of Literary Interpretation expresses the thought of an author for the purpose of revealing it to his audience, he should be wholly absorbed in the relation of that thought to his hearers, then if his body is free as a medium of expression, his gestures will be true, spontaneous and effective.

Prof. Hiram Corson suggests in his "Voice and Spiritual Education," that the only true way of teaching literature is through interpretation. He says, "A poem is not truly a poem until it is *voiced* by an accomplished reader who has adequately assimilated it — in whom it has to some extent been born again, according to his individual spiritual constitution and experiences. The potentialities, so to speak, of the printed poem, must be vocally realized." And so indeed they must, before it can thrill the nerves and touch the lives of others, giving to them a full understanding of the author's being as revealed through his production. Literature and Vocal Expression constitute one study, and their divorcement in the mind of the student is fatal to the best results in either; the two cannot live and flourish while separated. Professor Moulton of Chicago University, and formerly of Cambridge University, England, says, "As well try to teach music without the instrumental representation, as to teach literature without the vocal interpretation."

In perfect interpretation, there are two primary and essential elements. The student must first make the author's state of mind his own. "A reader must have," as Professor Corson says, "the fullest possible appreciation of the subject matter, intellectual and spiritual, of a poem." And he must have also a cultivated voice and responsive body, which act as true mediums of expression. He must be susceptible to impression from the suggestion of the written page, and he must be fully capable of revealing the impression through voice and gesture.

PURPOSE OF RESPONSIVE DRILL.

"For of the soule the bodie forme doth take,
For soule is forme and doth the bodie make."

The purpose of the Responsive Drill is the higher education of responsiveness in nerve centers, to the end of overcoming all hindrances, that the body may be free to express the highest activities of the soul.

The first step in realizing this purpose is to train the body to responsiveness through muscular sense. This muscular sense is aroused by taking, with some one of the various agents of expression, certain positions which correspond to the noblest states of mind.

By these exercises are secured muscular co-ordination, and consequent true relationship of all the different agents of expression. From this relationship, results beauty of form and movement. The body being educated in response to the highest states of mind, reveals obedience to the aesthetic laws of beauty, — Dominant Center, Length of Line, Opposition, Unity, etc. The Responsive Drill develops the body as a medium of expression; it tunes the instrument upon which the soul may discourse its harmonies. As taught in this college, Expressive Physical Culture joins hands with Oratory and Expressive Reading. In the study of Oratory and Expressive Reading, the body is employed in a legitimate service — namely to reveal, in such a way as to inspire others, the thoughts of the great masters of literature and oratory. Until the body serves as a revelator of the highest activities of mind it is not fulfilling its divine mission.

Form determines and interprets function; therefore every vital substance is recognized by the form it takes. What is true of physiology is correspondingly true of psychology. In expression through gesture, the soul causes the body, through its parts, to assume such forms and movements as reveal the soul's activities. The promptings of the soul cause certain vibrations of the brain, which are communicated by nerve fibers to the muscles, causing them to produce such attitudes and movements of the head, torso, and limbs as to picture to the beholder what is transpiring in the soul of the speaker.

The nerve centers need educating or they act meagerly, and frequently cause the person to make such gestures as contradict his words and emotions, or reveal his mental activities in an ungainly or awkward manner. By the practice of these exercises, the body not only attains a high degree of responsiveness, but the muscles become free and elastic, the nerves healthy and strong, and all the parts of the body develop the power of acting in unity, thus freeing the person both from his own inertness and from all slavishness to rules of elocution and gesture.

The Responsive Drill consists of the culminating exercises in a series which prepare the body for spontaneously expressing in a beautiful way the noblest purposes and sentiments of the mind.

The Emerson System of Expressive Physical Culture is based upon the same pedagogical laws which are obeyed in the wise presentation of any subject. The mind naturally considers an object or subject, first as a *Whole;* then it differentiates the whole into component parts, and considers these parts as wholes. When the nature of the parts is understood, the mind inquires concerning the use, service, or *relationship of these parts to the whole.* After the use, or service of the parts, has been mastered, the mind naturally turns to consider the *relationship existing between the parts*, i.e., their service to each other.

In accordance with these principles, the body is dealt with first as a whole. The entire person is brought into right relation with the law of gravitation; the center of the chest, which may be considered the dominant center of the body, is elevated, for the purpose of developing strength and poise of bearing. The student attempts to *stand for somewhat*, — to reveal that which he aspires to be; all of which tends to develop "good presence."

In the second step, attention is given to the development of the freedom of the parts of the body. The head, arms, chest, legs, etc., as agents of expression, must be free and individualized in action. Lack of freedom of parts is easily seen in the so-called "clumsy person," who represents "a mass" in his movements. The parts not being free, or differentiated, the body moves as a whole, or in a seemingly entangled state.

From this differentiation of the parts, we enter the third step, in which the parts are exercised in relation to the whole, each part being trained to serve the whole, or dominant center, of the body, just as the well disciplined soldiers of a regiment act individually, yet as servants of one master, — the commanding officer.

In the fourth step, the parts are especially exercised in relation to each other. Not only must the parts be separated and made free, so as to move without necessarily moving other parts, but there must be agreement of action, and harmony of movement in relation to each other, the result of which is unity, the highest criterion of beauty. The exercises of the Responsive Drill are presented for the higher development of this harmonious relationship, and further cultivation of muscular sense upon which it depends.

As above stated, by the practice of these exercises, the muscles become free and elastic, the nerves healthy, strong and responsive, and the parts develop the power of acting in obedience to the laws of beauty.

Health, beauty, truth and good are inseparable. No one will deny that health is essential to beauty, that, as Emerson says, "All beauty must be organic; it is soundness of bones that ultimates itself in a peach-bloom complexion, and health of constitution that makes the sparkle and power of the eye." Nor will anyone dispute that beauty, truth and good are more conducive to health than their opposites. The practice of exercises in response to higher attitudes of mind develops the prime essentials to success — health, strength and endurance. It brings freedom and elasticity, and quickens the powers of nutrition and recuperation.

But physical culture should be studied not only as a means of obtaining health and strength, it should be studied as a means of revealing refinement and culture. A body is beautiful in the ratio that it expresses the noblest states of mind. The Emerson System of Physical Culture is based upon this idea, and is therefore called *Expressive* Physical Culture.

The study of Expressive Physical Culture should not be confined to any class nor to any age, to the weak nor to the strong, but should be pursued by all persons, for the sake of preparing the body to beautifully express the noblest impulses and purposes which stir the individual. "God is a God of beauty, and beauty is everywhere the final process." Culture of body is attained only when the body is responsive to the finer sentiments, to the higher aspirations, to the love of truth, and to the spirit of benevolence. The exercises of the Emerson System of Expressive Physical

Culture, in their nature and in their purpose, provide for the expression of the noblest thoughts, and highest aspirations; and thus the education of the body becomes vitally related to the education of the mind.

The Greeks separated no form of education from the health and beauty of the human body. This fact of the oneness of man's nature is rapidly being taken into consideration in all modern systems of education. It is as impossible to truly cultivate the body separate from the consideration of its service to the mind, as to truly educate the mind as distinct from its medium of expression, the body. The proper education of a man deals with him in his entirety,—intellect, soul and body. Any system of education which leaves out the education of the body is like a cracked bell which may produce a noise, but no harmonious reverberation.

"That man has had a liberal education," says Professor Huxley, "whose body has been so trained in his youth that it is the servant of the mind; whose mind is stored with great *essential* truths, whose intellect is like gold, who is full of force and fire, and whose passions have been trained to be the servants of a tender conscience; who has learned to love all beauty, to hate all falseness, and to respect others as himself. Such a man, and no other, has had a liberal education."

That man whose body has been so trained to be the servant of his mind, has had, whether directly or indirectly, bodily education in expressiveness. The body which has not been educated to obey the mind cannot be a well trained or valuable servant. Not only must mind and body be educated, but their *relationship must be developed by education.* "Nor soul helps flesh more now, than flesh helps soul."

Then, in order that nature may express herself more fully; in order that the body may become the servant of the mind, in order that the soul may 'help the flesh,' we must look to education to overcome the hindrances and establish freedom for the working out of nature's plans. A cultured body in the service of an educated mind is a constant revelation of nobility of soul, of beauty, truth and good. An orator does not rise to his highest until every part of his body yields itself to his purpose, and discourses the music of his theme. Then every muscle is a tongue, every glance of the eye is eloquence. Such an orator speaks through his entire body. Scintillations of thought and feeling flash along a thousand lines of communication, and he becomes a realization of the poet's ideal, —

> " Pure and eloquent blood
> Spoke in his cheek, and so distinctly wrought
> That one might almost say his body thought."

Karl C. F. Krause gives the following ideal in education: "Man is not mind alone, nor yet body alone; neither can we think of him as a mind and a body ranged along side of one another, but as a fusion of mind and body fashioned anew by God, destined to manifest the life of nature and the life of the spirit in intimate union, and by the reciprocal play of mental and bodily faculties to show forth their harmonious workings in the products of man's activity. Mind and body are there coeval, equally endowed with life, equally divine. They require to be held equally sacred and pure, to be loved and cherished equally. A healthy mind must dwell in a healthy body, if man is to be a complete human being, and fulfill his destiny fully.

The mind desires and demands that the body shall meet its needs helpfully and generously, that it shall widen the scope of knowledge, show practical skill, unite him by speech with other men. Kind nature does not disappoint this expectation ; she sets great value on mind, and overwhelms it with her love and bounty. But let the mind set an equal value on the body; let it consider the body co-equal with itself, bow down before it as a glorious manifestation of the power and love of God. Let the mind be careful to support, help, gratify the body, in as far as it conduces to health, strength and beauty; let it mold the body until it is the reflex of a beautiful soul; let the mind consecrate the body to a free service in every noble cause."

POWER OF PRESENCE.

Expression through gesture may be divided into three general divisions, namely, Bearing (which constitutes what is properly termed Presence), Attitude and Movement.

Bearing or Presence reveals character, and is habitual. Attitude indicates the passing emotion, and is transitory. Movement or Inflection indicates the definite form, activity and direction of the object of thought.

Presence is the full and complete expression of the man behind all his passing thoughts and feelings. It is his personality shining through his works. The greatest and most effective agent in communicating thoughts to an audience — is the presence of the speaker. Henry Ward Beecher, when addressing an audience upon the subject of oratory, once said, "The greatest thing in oratory is the man," and further, in urging the necessity for thorough culture in oratory, he said, "So long as men are in the body, they need the body. The first work, therefore, is to teach a man's body to be the welcome and glad servant of his soul, and in this work, the education of bodily presence is the very first step."

The power of the orator depends more upon his presence than upon any other one thing. History and tradition tell us that when the sermons of some of the early New England divines were delivered, so powerfully were the audiences affected, they would often rise to their feet, or groan and cry aloud. The written words of these orators possess no such power; they do not justify the mighty effects which they produced upon their hearers. The published orations of Demosthenes do not reveal to us the magic of his power. The magic was in the man.

Emerson in his essay on Character says, "I have read that those who listened to Lord Chatham felt that there was something finer in the man than anything he said. We cannot find the smallest part of the personal weight of Washington in the narrative of his exploits. This inequality of the reputation to the works or the anecdotes is not accounted for by saying that the reverberation is longer than the thunderclap, but somewhat resided in these men which begot an expectation that outran all their performances. The largest part of their power was latent. This is that which we call character — a reserve force, which acts directly by *presence* and without means."

All the experiences and thoughts of a man's life enter into his presence, because they enter into the structure of his mind and character. An habitually noble purpose dominating the individual, together with the reflex activities of his mind, coming as a result of the execution of that purpose, elevates and expands the character, and develops a noble presence. That soldier whose purpose consists merely in a desire to overcome an enemy will never have the presence of a commander, even though he wears the general's uniform. The presence of the commander is the result of experiences on many battle-fields, of brave and fearless conduct. The presence of a real commander inspires his men to fight and, if need be, to die.

During Napoleon's expedition in Egypt, where he met not only armies, but that which was more fearful, the terrible Egyptian fever, his stricken soldiers were filling the hospitals. Napoleon saw that his campaign was hopeless unless he could stay that plague, which was more destructive than the force of opposing armies. In spite of the remonstrance of his officers, he visited the hospitals, saying, "He who can conquer nations can conquer the plague." His presence brought new hope and life to the soldiers, and the plague was arrested.

The proper study of oratory will develop a noble presence, because a proper study of the subject consists in appealing wisely to what is highest and best in human nature; it involves an advocacy of that which meets the deepest needs of mankind. All the great orators of the past developed their powers through advocacy. Demosthenes and Cicero were unknown as orators until their powers were exercised in the advocacy of their clients. They advocated not only principles, but persons, — the welfare of human beings. The orator organizes into the structure of his own character, the principles and causes which he advocates. A system of education which involves the study and practice of the fundamental principles of the true philosophy of living, cannot fail to develop nobility of presence.

The presence of the orator serves as a reflector. Whatever of beauty, truth and good is in him, is reflected through his presence to his hearers. Beauty, truth, and good come from an infinite source, and the orator in order to reflect these must be in right relations with that infinite source. Every human soul was made to be a channel through which the waters of beneficence should flow from God to bless others. The great orator opens his soul to all avenues of truth, and in its pure and crystal depths are reflected the divine radiance which he has caught from God; he draws his power not from a private, individual fountain, but from an infinite source. There is in his soul "a well of water, springing up unto everlasting life," that continually draws its supply from the infinite ocean of God's love.

THE PHYSIOLOGY OF GESTURE.

THE intimate relation existing between mind and body, their action and reaction upon each other, no thinking person of to-day will attempt to deny. In the study of expression, whether through voice or gesture, we are, at the first step, brought face to face with this important truth, and it becomes necessary for the student to turn his attention to the physiological as well as the psychological phase of the subject.

In briefly considering the subject from its physiological standpoint, we may think of the human body as divided into the *apparatus of animal life* and the *apparatus of organic life*, the two being blended in both structure and action. *To the apparatus of animal life belong the nerves of the cerebro-spinal system, the organs of sense, and those of motion, including the bones, cartilages, ligaments, and muscles. To the apparatus of organic life belong the nerves of the sympathetic system,* *the organs which manufacture blood, maintain its purity, and keep it in circulation.* The apparatus of organic life serves to sustain the animal apparatus, to supply it with power, and to maintain it in working order. It is the perfect unity of action between the processes of organic and animal life that produces health and strength, and renders the body an effective medium of expression.

THE NERVOUS SYSTEM.

The nervous system is the instrument not only of the mind, or of the psychical powers, but it is also the means by which organic life is sustained. Action of the nerves impels and regulates the processes of respiration and circulation during the unconscious hours of sleep, as well as during the conscious mental activity of waking hours. In both the animal and organic apparatus, the nervous system is the medium for transmitting stimulus, and is therefore equally necessary to the manifestation of our psychical and physical powers. The student of gesture is especially interested in the nervous system because all muscular action is a result of stimulus received from the nerves which are imbedded in the muscles. Sever the connection of nerve and muscle and all muscular action ceases.

In studying the nervous system, it should first be thought of as a whole, as forming a nerve man or nerve skeleton. If it were possible to separate the nervous system from the rest of the human organism, it would be found to be a complete whole, each part directly or indirectly connected with and dependent upon every other part. As in the circulatory system, all parts are related to each other and controlled by their dominant center, the heart, so in the nervous system, all parts are so related as to make a perfect whole, the brain being their dominant center.

For convenience in study, the nervous system may be classified in two divisions: *the central or cerebro-spinal system*, which includes the peripheral system and is classed under the apparatus of animal life, and *the sympathetic system*, which is classed under the apparatus of organic life.

The nerves are composed of white and gray matter, the white being in the form of fibers, and the gray in the form of vessels or cells. The gray matter surrounds the white, except in the spinal cord, where the order is reversed, the white matter surrounding the gray.

A nerve center, or cluster of cells, is composed of gray matter and generates nervous power.

The nerve fibers are composed of white matter and conduct this power to the various parts of the body.

The ganglia, or clusters of nerve centers, are connected with each other and, directly or indirectly, with the brain by means of the nerve trunks or fibers.

It is proved by experiment that nerve power is generated in the ganglion, and that the trunk or fiber serves as a conductor; if a nerve trunk be severed, those parts of the body to which the severed portion is distributed are paralyzed. No effort of the will can produce any motion, nor can sensation be felt in the severed parts; while those parts of the body to which that portion of the severed trunk which is still connected with the ganglion, are distributed, retain their power to receive and carry impression. If the ganglion is destroyed, all those parts which are exclusively supplied by the trunks proceeding from that ganglion are paralyzed, for the nerve trunks have nothing to carry.

Through the nervous system we gain all our knowledge of the outer world, and on the other hand, it is the medium through which the mind within reveals itself to other minds without. The nerves furnish the connecting link between the inner and outer worlds; between spirit and matter. Sever this connection, and the two worlds are as undiscovered countries to each other. When a great storm destroys telegraphic and telephonic communication between different cities in distant parts of the country, those cities are for the time isolated, because the means of communication are destroyed. Of vastly more importance than electric wires to a metropolis, are the nerves to the human brain, and much more irreparable is their loss or severance. Man understands the electric mechanism and can repair the wires, but comparatively little is known of the nerves, and there is much less chance of repairing them when injured. If the facial nerve is paralyzed or severed, that portion of the face to which it is distributed is henceforth expressionless. So with every portion of the body, sever its nerve, or in other words, its connection with the brain, and it can no longer move a muscle nor express mental activity.

The nerves, which traverse all parts of the body, minister to the mind by making it cognizant of what is going on in the world outside, and by enabling it to act upon the material world. Each nerve sense fulfills its part in enlightening the mind. The mental horizon is limited and the physical world darkened by the loss of any one of the senses. Were it possible for a person to be born with the power of thought but without the avenues for impression and expression, he would be, "like a seed buried too deep in the earth."

Where the mind is deprived of one avenue of impression and expression, by the law of compensation, the remaining senses often develop greater acuteness. An interesting experiment is given in the case of Helen Kellar, showing the lasting effect of sensation, as well as the intimate relation of the senses. While her fingers were placed upon a piano two old plantation songs, which she had heard when a child, were played upon it. She at once recognized the songs, and made such manifestations as showed that she remembered hearing them sung by her father when she was but a baby, before the severe illness which deprived her of the senses of sight and hearing.

Every method by which one mind can communicate with another mind involves first, generation of nervous energy; second, muscular contraction; and third, impression upon the sensory nerves of another person. This is true not only in communication by means of spoken or written language, but in the look, the touch, the gesture, which are often more expressive than words can be. The interchange of ideas and emotions can only be brought about by means of the action of the nerves upon the muscular system. In order that the action of the nerves upon the muscular system to the end of truthful expression through gesture, may be more fully understood, we will consider somewhat in detail the classes of nerves, and of nerve action.

CLASSES OF NERVES.

The nerves may be divided into two general classes; the afferent (*ad*, to; *fero*, to bear) and the efferent (*ex*, out; *fero*, to bear).

Afferent nerve fibers are those which carry impulses to the nerve centers from the various parts of the body.

Efferent nerve fibers are those which carry impulses from the nerve centers to various parts of the body.

According to Foster, most of the afferent fibers produce what are called sensations, and for this reason are commonly called 'sensor' fibers; but afferent impulses frequently produce other changes than sensations, such as modifying a reflex or automatic movement, without giving rise to a sensation. Again all the efferent fibers carry stimulus from nerve centers, but they do not always carry impulses to the muscles, and so produce movement. Those which carry impulses to the muscles and result in motions are called 'motor' fibers. Hence the terms 'afferent' and 'efferent' are distinguished as more general expressions than those of 'sensor' and 'motor,' the latter being included in the former.

When the hand is suddenly brought too near a hot stove, the sensor nerve immediately carries a message to a nerve center and at once the command is sent back by the motor nerve to move the hand. The sensor nerves report the impressions made upon them, and the motor nerves stimulate the muscles to move in accordance with the nature of the sensation.

If the sensor nerves of any part of the body were paralyzed, no sensation would be reported, that is, there would be no feeling in that part; if the motor nerve were paralyzed, the sensor nerve might report the sensation and yet the person would be powerless to move that portion of the body. If the sensor nerves of the lower limbs were paralyzed, a person might see his leg amputated and yet sense no pain in the leg. There is a certain kind of poison, Urari, which paralyzes the motor nerves; if this were administered to a person, he might thrust his hand into the fire and while suffering excruciating pain, he would be powerless to draw his hand from the fire. Such a temporary condition of the motor nerves is realized in what is commonly called 'nightmare.' While a person is in this condition, he often suffers great pain, but is unable to move himself. As soon as he is aroused by another, or arouses himself by his own struggles, he is relieved.

Physiology tells us that the nerves not only conduct the stimuli, but also have the power of reinforcing it; the stimulus first received by the nerve increases in intensity as it reaches the muscles; — just as a ball of snow started from a hill-top increases in size as it rolls down the hill. Muscular exercise stimulates the nerves and thus develops in them greater reinforcing power, thereby causing a stronger contraction of the muscles. This is one reason why extraordinary feats of strength can be performed by persons who have had proper physical training. This power is not due to increased muscular tissue alone, but also to greater reinforcing power inherent in the nerves, causing a more intense stimulation of the muscles.

The stimulating effect of the emotions upon the nerves, and through them upon the muscles, is very apparent under strong emotional excitement. In this relation, Dr. Carpenter relates an incident of an old cook, feeble with age, who on hearing the cry of "fire" in the house, seized an enormous box which contained her whole property, and ran down stairs with it as easily as if it had been a dish of meat. After the fire had been extinguished, she could not lift it a hair's breadth from the floor, and it required two men to carry it up stairs again.

No matter how fatigued, soldiers march with a buoyant step to the music of a familiar and inspiring battle hymn. Literature abounds in instances of seemingly superhuman strength under the influence of extreme emotional excitement. Sir Walter Scott, in his poetic account of the battle of Flodden Field, describes Marmion as he lay mortally wounded upon the field; who, on hearing the sound of the approaching army, aroused his flagging energies and called upon his officers to charge, —

> "A light on Marmion's visage spread,
> And fired his glazing eye:
> With dying hand, above his head,

He shook the fragment of his blade,
And shouted 'Victory!
Charge, Chester, charge! On, Stanley, on!'"

The following story has been related on good authority. A New England farmer, while harvesting hay in his field, was startled by the sudden cry of his little son who had been playing near by. Upon turning, the farmer saw the wheel of the heavily loaded cart rolling on the body of his child. In an instant he sprang forward, and with one effort, lifted the wheel from the child's body. It was afterwards found that the load of hay weighed two thousand pounds, and that the utmost weight that the farmer could lift, under ordinary circumstances, was one hundred and seventy-five pounds.

The stimulating effect of the emotions upon the nervous system has been felt by all when they have received either encouragement or discouragement from others, while performing any work requiring muscular effort. The assurance coming from words of encouragement has a perceptibly inspiring effect upon the nerves, whereas words of discouragement sometimes take away the power of action. These illustrations reveal the intimate connection between states of mind and muscular expression.

Every spontaneous gesture is a report of a mental activity transmitted along the nerve fibers from the brain and externalized in muscular expression. This suggests the physiological basis of the fundamental principle in natural expression, viz., that *right expression depends upon inducing right states of mind.*

CLASSES OF NERVE ACTION.

As the nerves themselves have been divided into two general classes, the afferent and the efferent, so nerve action may be divided into two general classes, voluntary and involuntary.

A voluntary act is one caused by the immediate dictation of the will for the fulfillment of a definite end. A familiar illustration of a voluntary act is seen in the movements of the hand and arm of a child, when learning its first piano lessons. The fingers are for the first time seeking the different keys, each of which is struck by a direct command of the will.

An involuntary action is one which takes place independently of the will. The movements of a little child while his mother is removing a splinter, which he has accidentally thrust under his finger nail, are involuntary. The muscles, independent of his will, twitch and withdraw the hand in spite of his desire to hold it still.

All volitional action is based on an idea of the end the will has determined upon, whether this has reference to bodily movements or to mental exertion. In Mental Physiology, Carpenter states that, "the will does not directly produce the result, but plays, as it were, upon the automatic apparatus by which the requisite nervo-muscular combination is brought into action. . . . What we *will* is not to throw this or that muscle into contraction, but to produce a certain preconceived result." *The will, then, is concerned with the result to be obtained*, whether it be to accomplish some physical design, or whether it be a desire to impress another mind with an idea.

As the marksman, through repeated drill, trains his muscles to hold the gun, pull the trigger, etc., thus leaving his mind wholly free to concentrate upon the end to be attained; so the student of expression, through careful practice of physical and vocal exercises, establishes the right muscular and vocal habits, so that at the command of the will, "the requisite nervo-muscular combinations" can instantaneously be formed. At the time of speaking, the student of expression is concerned wholly with the end which he wishes to attain through his voice and his gestures, namely, to affect the minds of his audience. He is not concerned with the way in which this result is attained; he is not giving his attention to the manipulation of his larynx to the end of producing a well modulated tone, nor to the muscles of his arm to the end of producing a graceful gesture; but, like the well trained marksman who is concentrating his mind upon the target, he is concentrating his mind upon the audience to the end of affecting their thoughts, purposes and actions.

In the act of vocalization, the co-ordination of a large number of muscles is required, and so complex are these combinations that it would require years of patient study to determine their precise condition during the course of ordinary conversation. Nature has so wisely adjusted means to ends, that by proper training, this fine muscular co-ordination is accomplished through the reflex of muscular sense, independent of the will. The will being concentrated upon the result, touches the springs of the automatic mechanism which training has established for us. When any new task is presented to us, if the means of its accomplishment be, "not within the capacity of our ordinary mechanism, by a course of training or practice we have to create a new mechanism, the effect of which is to make the automatic apparatus grow to the mode in which it is habitually exercised."

If the muscles were under the direct control of the will, we would need to know just what muscles were necessary to execute a command of the will, and to select and control their action and reaction upon each other. But, instead of this being true, the most learned anatomist is no better able than the little child, to accomplish a difficult movement he has never practiced.

The will operates through the involuntary mechanism,—the medium through which it acts being the automatic and reflex centers. In learning to walk, the child wills to reach a certain place. To carry out the will of the child, nature calls into action the reflex power of the nerves. The desire of the little one is at once reported to the centers in the nervous ganglia which control the action of those muscles used in walking. Acting under a volitional stimulus, the child thinks not of the muscles nor of the order in which they are used; but, in obedience to the laws of nature, such muscles contract as are necessary to carry out the desire. Even were the child sufficiently learned to think of each individual muscle, to do so, not only would be of no assistance in accomplishing the end, but the end would be more or less defeated because the nervous energy generated would be divided.

It is difficult to draw a definite line of demarcation between voluntary and involuntary nervous action, and to say where the one leaves off and the other begins, because these actions are so closely related; but under the general head of *involuntary movements* may be classed those movements which are prompted by *automatic* or by *reflex* nervous action.

The automatic (self-acting) movements may be divided into two classes, namely primarily automatic, and secondarily automatic. *Primarily automatic or spontaneous movements*, i.e., movements which are congenital, such as the rhythmic beating of the heart, the movements of the peristaltic wave, etc., are under the control of the sympathetic nervous system which impels the activity of the organs of life. In these movements, under normal conditions, the impulse, instead of being started from without and sent along the afferent fibers to the nerve center and thence along the efferent fibers to the muscles, is originated *in the nerve center itself*, and transmitted by the efferent fibers independent of any outward cause.

These primarily automatic movements take place entirely independent of volition, though they are liable to be affected by the emotions; but there is a large class of automatic movements which the will initiates, and which continue of themselves in sequences established by previous habit. These movements are reflex in character, and though performed at first in response to a direct command of the will, come by frequent repetition, to be performed independently of the will: such movements are called *secondarily automatic.* They result from power resident in the cerebro-spinal system.

Of this class, may be mentioned movements of locomotion, such as walking, dancing, etc., and those employed in dressing, writing, etc. Such movements are called both voluntary and involuntary. They may be started, directed or checked by the will, but the will is not necessarily exercised in their continuation. One may walk, run, dance, etc., automatically, while the mind is busily concerned with other things. So with many muscular movements that have been acquired through use or repetition.

There is an automatic impulse of the nerves which reports through the muscles, the physical and mental states, whether permanent or transient. This expression of the muscles is involuntary and results from nature's impulse to reveal what is within. Nature is true to herself, and a change of expression can be induced only by a change in the state of mind or body.

When one purposes to reveal mental activity through gesture, the movements of the body may be classed under those which are both voluntary and involuntary. The will may start or check them, but they are instinctive in character and spring into action spontaneously or automatically; the person's state of mind merely touches the spring, as it were, of "a mechanism which automatically combines the multitude of separate actions that are required to produce the result; just as when we pull the trigger of a gun, or open the valve which admits steam into the engine."

The term "reflex" is derived from the Latin verb *reflecto*, which means "to reflect," or "to bend back." Reflex action *is the result of power resident in the nerve centers to transmit to afferent or motor fibers, impressions which have been carried to them by afferent or sensor fibers.* The acts of coughing, sneezing, swallowing, are familiar examples of reflex action. The anatomy of mollusks is so simple as to afford good object lessons in reflex action. Take, for example, a mollusk which consists of a "membranous bag, within which is a muscular envelope, and again within this, a respiratory sac." The external envelope has two orifices, a mouth to admit water, and a vent for sending it out. From this water is assimilated food for its sustenance, and when a foreign or injurious substance is admitted, the muscles of the envelope contract violently, causing the water to issue from both orifices, and thus the offending particles are rejected. This is similar to the muscular contraction which takes place in coughing.

These simple reflex actions are involuntary in character and may or may not be accompanied with sensation, but if any of the parts which may be said to constitute the "nerve circle" be missing the action cannot take place. In certain movements, the nerve stimulus is borne along the afferent fibers to the nerve center, and thence reflected by the efferent fibers so quickly as to leave no doubt as to the unconscious and involuntary character of the movement. If the hand of a sleeping person be slightly pricked, the hand and perhaps the arm, will change its position, and yet the person does not awaken and is unconscious of any sensation, but if the hand be tightly squeezed, the person will be apt to awaken suddenly and withdraw his hand because of the painful sensation.

These reflex actions result from power resident in all parts of the cerebro-spinal system. The parts employed in these actions are the afferent or sensor fibers, the nerve center, and the efferent or motor fibers. If the stimulus is carried to the spinal cord or any portion below the sensorium, the action is not accompanied by sensation, and therefore consciousness is not aroused; but if it is carried to the sensorium, then the sensation may be accompanied by consciousness.

Some physiologists class those movements which result automatically from the promptings of *sensation*, under the head of *instinctive* movements. These movements are reflex in character, but of greater complexity than the simple reflex actions. The movement of a person in springing forward to rescue another from danger, the laughter caused by the tickling of the foot, the start upon hearing some sudden sound, the winking of the eyes at some loud noise, and all movements of expression, are responses from sensations, and are instinctive actions.

Instinctive movements are "performed without any guidance from experience, and executed in precisely the same manner (when circumstances are similar) by all individuals of the same species, and must be regarded as proceeding from innate or constitutional tendency." This tendency is illustrated by the bees in the construction of their cells in perfect geometric design and proportion; by the beaver in the building of his dam; by the birds in building their nests, etc. Such tendencies are transmitted by heredity, and form the characteristics of the species. A turkey only ten days old, that had never seen a hawk, was so alarmed by the note of a hawk secreted in a cupboard, that it fled, with every sign of terror, in the direction of the opposite cupboard. Kittens dislike to get their feet wet, and when they do, shake them very violently, as if to shake off the water, "owing probably," says Darwin, "to the fact of their having aboriginally inhabited the dry country of Egypt." Water being poured out near the ear of a kitten, made it shake its feet as if they were wet: thus, by the law of association, the activity of the sense of hearing instinctively caused a muscular action, which was usually aroused through the sense of touch.

Movements of expression "are often more powerfully significant than any verbal language can be, for they convey the immediate experiences of the percipient mind, which have not been (and are often incapable of being) evolved into ideas, and thence translated into words; and they are immediately or instinctively apprehended by other minds. Long before children have attained to any comprehension of verbal language, they intuitively interpret the expression of emotions, and are sympathetically affected by them; as seems the case, too, with regard to such lower animals as habitually associate with man, and thus acquire that sympathy with his emotional nature which enables them to recognize its manifestation. The movements of the individual often reveal his state of mind *more truly* than his spoken words, which, being under the control of his will, may use his speech rather to conceal than to make known his thoughts." Familiar to all is the old adage, "Actions speak louder than words."

According to Darwin, "Actions of all kinds, if regularly accompanying any state of mind, are at once recognized as expressive. These may consist of the movements of any part of the body, as the shrugging of the shoulders, the erection of the hair, the exudation of the perspiration, the state of capillary circulation, labored breathing, and the use of the vocal apparatus."

A professor, who presided in the vivisection room of one of our prominent universities, once questioned the remark that the principle of reflex action could be applied in the teaching of gesture, saying that reflex action could only be obtained after decapitating the subject. This illustrates a prevailing idea; but if the same amount of attention and observation were given to healthy living animals that has been given to the infamous practice of vivisection, vastly less would be the pain and suffering, and of infinitely greater scientific value the results obtained. Let us turn our mind for the further study of this law toward beautiful, living nature; then the study of reflex action becomes, not a a bloody study amid cries of agony, but a wide and interesting field for education.

By studying the movements of the domestic animals, one sees constant illustrations of this law of reflex action through muscular sense to the end of unity. Watch the finely, organized, healthy horse, which has never been abused by being beaten or overworked. If, while he is standing in an easy, natural way, you should place one of his feet out at the side, and hold it there in a way to throw him out of his graceful position, he will so change the rest of his body as to come into harmonious relation with that foot, so that he may again feel easy; or else he will draw his foot back again until he physically feels "at home" with himself, and his usual graceful poise is re-established. The withdrawal of the foot, or any change of the body, is the result of reflex action caused by keen muscular sense, not a result of mental calculation.

It is with the study of reflex action through muscular sense, that the student of gesture is especially concerned. The primary aim in all physical education should be to establish right muscular habits; to train the body to the spontaneous expression of the highest sentiments of the mind. Were it not for this reflex power resident in the body, this high state of physical expressiveness could never be attained.

The Responsive Drill consists of the practice of such exercises as occasion healthy reflex actions through muscular sense, to the end of developing unity of action between all parts of the body. These reflex actions are all "necessarily linked with the stimulus that excites them," and the judgment is not concerned in producing them. In taking the exercises of the Responsive Drill, there is first a voluntary act of certain muscles, which, in obedience to the dictation of the will, assume a given position, such as the expression of "intellect" by the hand. This position of the hand arouses a certain muscular sensation which is transmitted by the sensor nerves to the cerebro-spinal system. Here it is reflected to motor fibers which despatch commands to other muscles of the body, and they, in response, assume an attitude in harmony with the position of the hand, and expressive of the same mental activity.

Reflex action through muscular sense may sometimes be retarded or withheld by an act of the will, or by some other preventive attitude of mind: for example, the movement of the foot when tickled with a feather, may sometimes be prevented by the will. Often a person finds it difficult to swallow a pill because the reflex action of the muscles is interfered with by the doubt in the mind that it can be easily swallowed; the mental attitude being that of doubt instead of expectancy, the reflex is entirely hindered or retarded.

If, in Responsive Drill, the inhibitory power of the mind interferes with and prevents the reflex which comes in response to the muscular sense gained by taking a position, it is because of some attitude of mind which acts against and overbalances the muscular response. A reflex action through muscular sense might be prevented by the will, by a lack of expectant attention, by protracted deliberation, or by an unconscious lack of trust in nature's laws. This mental inhibition may be overcome by the law of *expectant attention* which allows the automatic inhibitory power of the cerebrum to act as a regulator of reflex action. Carpenter says "the expectation of a result is sufficient to determine without any voluntary effort, and sometimes even in opposition to the will, the muscular movements by which it is produced." The ability to produce and continue for any considerable length of time this state of expectancy is often a test of mental discipline. Too much emphasis cannot be laid upon this matter of expectant attention. The mind should be disciplined to receive nature's commands.

In obeying this law of reflex action in Responsive Drill, the student is unconscious of the *processes* by which the unity of action from a certain position is attained, but he may be conscious of the result gained. In repeating the exercise this "*result*" should not be held before the mind as an object; the student should, with each *repetition*, hold the mind in an expectant attitude, so that the law of unity may be made manifest in his body. In this way the student will take the exercise better each time, for he will not be hindered by the mental concept of his previous response, which may have been faulty.

INHIBITORY POWER OF CEREBRUM.

The automatic inhibitory power of the cerebrum is that power which unconsciously inhibits or prevents undue nervous action. It is sometimes called the "regulatory" power, because it is that power by which nervous action is regulated or balanced. The two powers, inhibition and reflex action, are forever opposed to each other, and upon their proper adjustment the equilibrium of the physical powers depends.

Nature governs by opposing forms of force: this law is manifest in the ebb and flow of the tide, in the diastole and systole of the heart, in the centrifugal and centripetal forces. In the human body the pneumogastric nerve acts in opposition to the sympathetic nerve, the latter impelling the activity of the vital organs, the former regulating it. Not only is this law of opposing forms of force manifest in the action of the pneumogastric and sympathetic nerves, but it is manifest in the body as a whole. While there is a tendency toward equilibrium in these two opposing forms of nerve force, proper physical culture secures a more constant obedience to this law of equilibrium and thereby prolongs the life of the individual.

While there is a constant tendency toward reflex action in the body, there is also a constant inhibitory tendency, and it is by the proper adjustment, or balance, between these two that the normal state of the body is maintained.

Were it not for this automatic power of the cerebrum, the body might be in such constant activity as to soon exhaust its vitality. The activities of organic life, which from undue excitement might otherwise be stilled, or else performed so rapidly as to exhaust life itself, are thus regulated. If it were not for this automatic inhibitory power of the cerebrum, under the influence of very exciting emotions, such as grief, fear, etc., the sympathetic nerve might often cause (as it sometimes does) a more rapid action of the arterial system than the heart can endure.

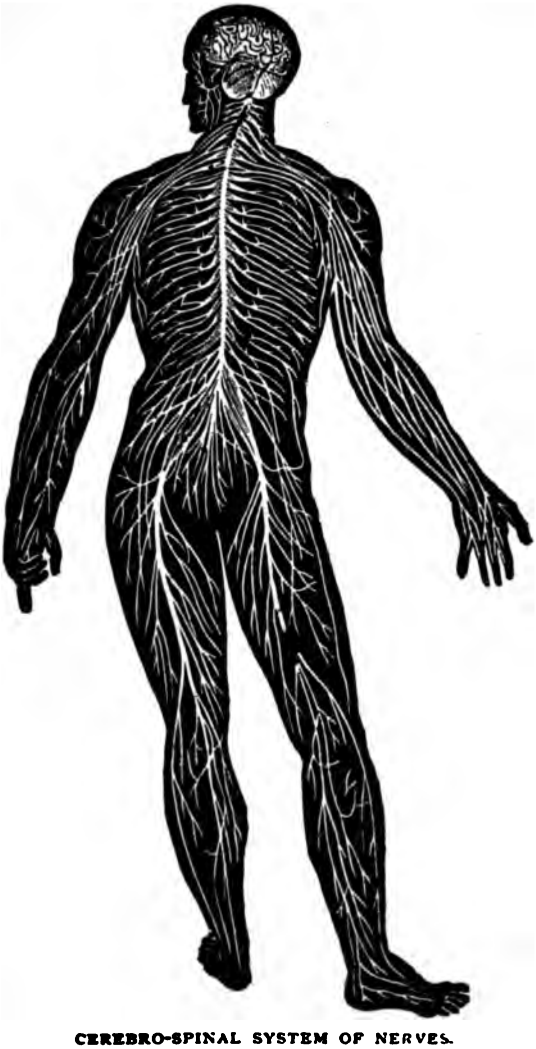
In the Responsive Drill, the body is trained through response to positions, which correspond to healthy attitudes of mind, to healthy muscular reflexes, so that the powers of reflex action and inhibition are brought into more perfect relation to each other. These exercises develop not only the power of muscular response, but also the power of controlling reflexes. The disease known as Chorea (St. Vitus' dance), in which the equilibrium between inhibition and reflex action is partly lost, can be overcome by a faithful practice of these exercises. These powers are not the masters, but the servants of the mind, and it is the province of proper physical culture to develop and discipline them in their right relation to each other.

In addition to this automatic, inhibitory power of the cerebrum, there is also an inhibitory, or regulatory power of the *mind*, which controls the expression of ideas and emotions, and which has already been spoken of as a possible inhibitor of reflex action through muscular sense. In the Responsive Drill, this power acts as a regulator by allowing the state of expectancy to enter, and take possession of the mind, and on the other hand, it prevents improper expression.

With the sensitively organized and cultured person, the sense of propriety and constant regard for the feelings and opinions of others regulates expression and conduct. The exercise of the inhibitory or regulatory power of the mind, involves the development of the will, and lies at the basis of the choice of objects of thought, which is one of the important lessons of life. By this means, the mind may be turned from harmful and unpleasant objects of thought, the contemplation of which breeds wrong feeling and wrong action, to the meditation of that which is pure, high and holy.

REFLEX CENTERS.

In order that the subject of reflex action may be more fully understood, we will consider the *four principal reflex centers which are classed under the central nervous system*, viz., the cerebrum, the cerebellum, the medulla oblongata, and the spinal cord. The first three are the principal divisions of the brain, or that portion of the cerebro-spinal system contained in the cranium; the fourth, the spinal cord, is that part of the cerebro-spinal axis which is situated in the spinal canal.



CEREBRO-SPINAL SYSTEM OF NERVES.

It is unnecessary to enter into any lengthy anatomical description of these organs, for this properly belongs to another department of the college studies. Here we merely suggest some of their functions and consider them especially in relation to the study of expression.

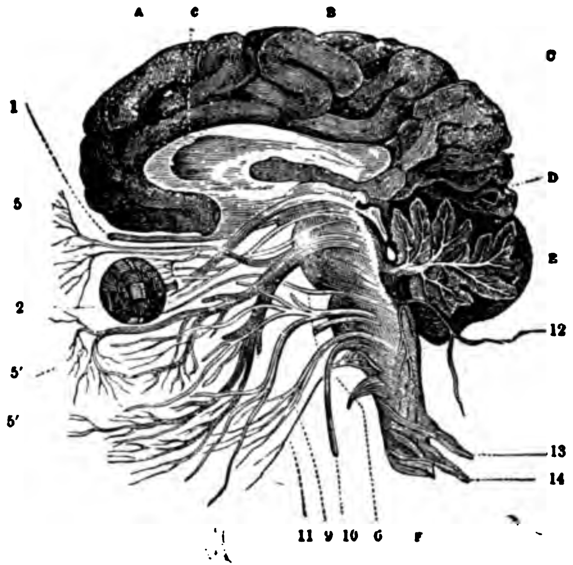
CEREBRUM.

The cerebrum is the largest portion of the brain. It is divided into two hemispheres by the great longitudinal fissure, the connection of the hemispheres being established by commissural fibers.

The cranial nerves are those which arise from that part of the cerebro-spinal axis within the cranium, and are transmitted through various openings in the skull. They are twelve in number and take their names from the parts to which they are distributed (see "Psycho Vox" page 53). Among these are the Patheticus, Motor Oculi, and Facial nerve, all of which are nerves of motion, and supply muscles of facial expression.

It is generally believed that the cerebrum is the especial organ of mental operations, including the intellectual, emotional and volitional activities. While it is true that there are actions excited independent of the cerebrum, it is also true that the cerebrum is a reflex center in itself, being essential to the formation of ideas regarding objects of sense, and to any intellectual process resulting from these ideas. Whatever is experienced of thought or reflection, of joy or sorrow, of will or purpose, comes through this agent.

All those movements started by the will, or directly resultant from emotional or intellectual activity, have their origin in the cerebrum, though the motor impulse is carried out by means of the efferent nerves of the other portions of the cerebro-spinal axis; the stimulus which immediately calls the muscles into contraction being supplied from other reflex centers. Every pair of the sensory ganglia, the cerebellum, the medulla oblongata, and every segment of the spinal cord, are independent centers of nervous power, but in their perfect state, their especial office is to minister, in a peculiar way belonging to each, to the cerebrum.



BRAIN OF MAN, AS SHOWN IN VERTICAL SECTION THROUGH THE MEDIAN PLANE:—A, B, C, anterior, middle, and posterior lobes of the Cerebrum, showing its convoluted surface; D, Optic ganglia, E, Cerebellum; F, Spinal Cord; c, corpus callosum;—1, Olfactory bulb, 2, Eye, with Optic nerve; 5, 5′, 5′, Fifth pair of Nerves; 6, Sixth pair; 7, Seventh pair; 9, Glosso-pharyngeal nerve; 10, Par Vagum; 11, Hypoglossal; 12, Spinal Accessory, 13, 14, ordinary double-rooted Spinal Nerves.

In gaining knowledge of the outside world, the whole cerebro-spinal system serves the mental life, through the sensorium. Every impression tends to travel in an upward direction, and if it meets with no interruption, reaches the cerebrum without producing any reflex movement. When it arrives at the sensorium, an impression is made on the consciousness of the individual, and a sensation arises. This change produced in the sensorium is transmitted to the cerebrum, causing certain changes there, which may result in muscular or outward expression. "But if the ordinary upward course be anywhere interrupted, the impression will then exert its power in a transverse direction, and a simple reflex action will be the result; the nature of this being dependent upon the part of the cerebro-spinal axis at which the ascent has been checked." If the nerve excitement reaches the cerebellum, the special nerve center designated as the seat of muscular sense, a reflex will be sent through motor nerves, causing a movement of which the person may be entirely unconscious, such as lifting the right hand and arm when carrying a pail of water in the left hand. If it reaches the sensorium, there will be a sensation which "may react upon the motor apparatus by the reflex power of the sensory ganglia themselves," such as a start upon hearing a loud and unexpected sound, or the sudden closing of the eyes in a dazzling light.

Mental states are the results of a reaction of the cerebrum upon stimulus received from sensor nerves. The sensation is carried by sensory brain tracks from the sensory ganglia to the centers of reason, imagination, hope, fear, etc., and there being acted upon, may again be carried by the nerves of so-called "internal sense," to that portion of the brain called motor area, which communicates by motor nerves with the muscles of the face, torso, arm, leg, etc., causing those muscles to contract which are necessary to reveal the action of the cerebrum upon the sensation. Thus we have expression of various mental activities.

Professor Halleck says, "Every mental state tends to express itself in the appropriate habitual action. This is the foundation truth for the art of muscle reading. . . . The mental state of the most honest person tends to mirror itself in the muscles. The idea, we have

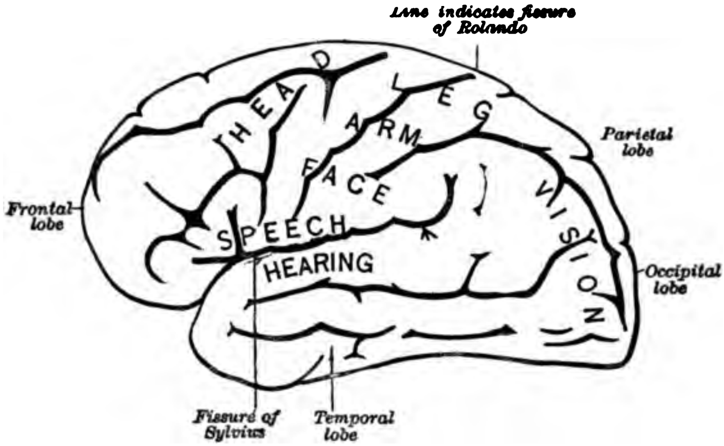


FIG. 10. — Diagram showing position of sensory and motor centers on the outer surface of the human brain.— Kirke's *Handbook.*

From " Halleck's Psychology and Psychic Culture.

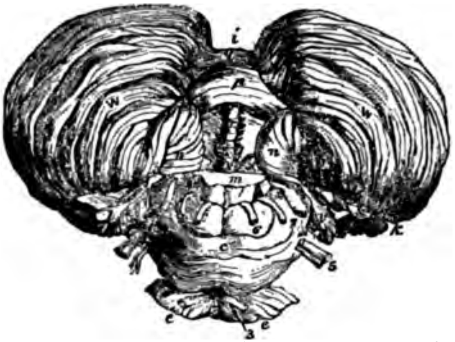
seen, is the mind in action, and a portion of the action is transmitted along motor nerves. . . . Every idea suggested to us tends to pass into action. The reason why action does not follow every idea is because the mind leaps ahead, foresees the consequences, and restrains the movement."

Much study has been, and is now being given, to the subject of localized functions, and many interesting and important facts are being brought to light. It has been proved by experiment that certain definite portions of the brain affect certain definite portions and functions of the body. The brain, so far as scientists can ascertain, is composed of an infinite number of centers, which are divided into two classes,— the physical centers and the mental centers. Certain centers have been located which influence the muscles of the arm, others which influence the action of the heart, etc. Many physical centers have been located, and scientists are still experimenting to find others. These discoveries have been of great assistance in surgery. Many scientists have attempted to locate mental centers, and there has been much progress made in this direction. There is a great future for this study. Careful investigation will be rewarded.

The cerebrum, which is the seat of mental activity, is the direct medium through which the soul manifests itself to the outer world, and the intimate connection of the study of the cerebrum, or principal brain, with that of muscular expression is readily perceived. It is said that the most interesting place in the landscape is the shore line, where land and water meet, where one stands and looks both ways. The human brain is the shore line between the spirit and matter. It is the place where the visible and the invisible seem to join; the place where God and man meet. It is the pivot upon which all life turns. The brain is the center of man, the theater in which is enacted everything which pertains to human life, whether physical, mental, moral, or spiritual.

THE CEREBELLUM.

The cerebellum is sometimes called "the little brain." It is situated beneath the posterior lobes of the cere-



An under view of the cerebellum, seen from behind.—The medulla oblongata, *m*, having been cut off a short way below the pons. (Reil.) *c*. Pons Varolii. *d*. Middle crus of cerebellum. *e*, *e*. Crura cerebri. *i*. Notch on posterior border. *k* Commencement of horizontal fissure. *l*. Flocculus, or sub-peduncular lobe. *m*. Medulla oblongata cut through. *q* to *s*. The inferior vermiform process, lying in the vallecula. *p*. Pyramid. *r*. Uvula. *n*, *n*. Amygdalæ. *s*. Nodule, or laminated tubercle *x*. Posterior velum, partly seen. *w*. Right and left hemispheres of cerebellum. 3 to 7. Nerves 3 3. Motores oculorum. 5. Trigeminal. 6. Abducent nerve. 7. Facial and auditory nerves.]

brum, and consists of two hemispheres connected by an elevated median portion, or lobe. This median lobe is the most important part, and in some animals, such as fish and reptiles, is the only part which exists, the hemispheres being added in the higher organisms, and reaching their development in man. The hemispheres are also connected by a fibrous commissure called the "pons Varolii," or "bridge" of nerves. This pons Varolii forms the origin of the facial nerve, which is the nerve of expression, and it has also much to do with muscular co-ordination.

The cerebellum is said to be not so much an organ of thought, as the especial seat of the muscular sense, which guides the muscles in co-ordinated action and in maintaining balance or equilibrium, as in standing, walking, running, etc. When the cerebellum is diseased or removed, it is found that unsteadiness of gait follows, and in some cases, there is an irresistible tendency to retrograde movements.

MEDULLA OBLONGATA.

The medulla oblongata is the continuation of the spinal cord, forming its upper and enlarged portion. The medulla, together with the spinal cord, has especially to do with the sympathetic nervous system, its chief function being to sustain the muscular movements controlling the activities of the organs of respiration, circulation, digestion, etc. It saves the cerebrum the necessity of supervising all the actions of the life-giving organs, thus, those movements which are essential to life are kept up without the conscious effort of the mind.

SPINAL CORD.

The spinal cord is that part of the cerebro-spinal axis contained in the vertebral canal of the spinal column. This cord of nerve matter is composed of the same kind of white and gray matter as is the brain. In the adult, it extends from the upper portion of the atlas bone, down about seventeen or eighteen inches. "The

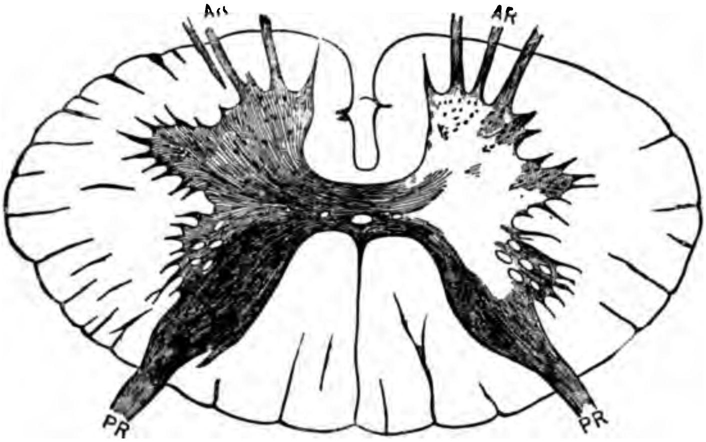


FIG. 4.—Transverse section of the spinal cord; in the center is the butterfly form of the gray matter surrounded by the white matter. *AR*, anterior roots of spinal nerves; *PR*, posterior roots.—Landois.

From "Halleck's Psychology and Psychic Culture."

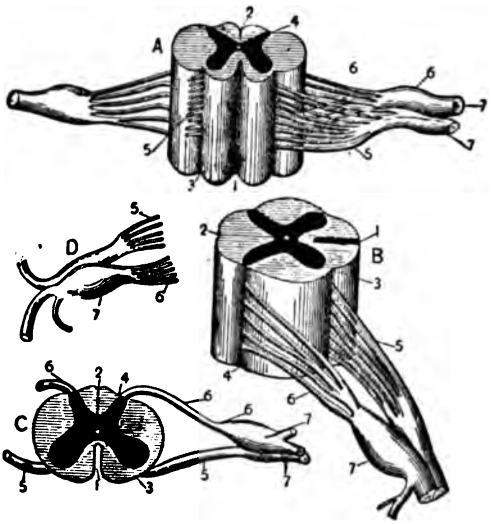


FIG. 5. — Different views of roots of the spinal nerves from regions of the neck. The number 1 in each case indicates the anterior median fissure; 2, the posterior fissure; 3, anterior lateral depression for the anterior roots; 4, posterior lateral groove for the posterior roots, 5 and 6, the anterior and posterior roots, respectively; 7, the united nerve formed by the junction of anterior and posterior roots.—Allen Thompson. From "Halleck's Psychology and Psychic Culture"

gray matter makes the spinal cord a nerve center capable not only of conducting a motor stimulus, but also of spontaneously bringing about a movement in the muscular system."

From the spinal cord arise the spinal nerves, of which there are thirty-one pairs. These are transmitted through the openings of the vertebral bones on either side of the spinal cord. Each nerve arises by two roots, an anterior or motor, and a posterior or sensor root. A little ganglion, reddish in color and of oval form, is developed upon the posterior root of each nerve, and just beyond this ganglion, the posterior and the anterior roots unite to form one trunk. This trunk, passing through the vertebral opening, divides into two branches, each containing efferent and afferent fibers. One of these branches is called the anterior division, and goes to supply the front part of the body and the arms, legs and neck. The other is called the posterior division, and supplies the muscles and skin of the back.

The offices of the spinal cord are,— first, to conduct the nerve force between the nerve trunks of the body and the brain centers. In this capacity it acts as a nerve trunk. Second, it is in itself an important nerve center of automatic and reflex action. In performing the duties of both these offices, the spinal cord plays an important part in the maintenance of the organic life of the body, as in respiration, circulation and digestion, and also in the various muscular movements of the limbs and entire body. In serious injury of the spinal cord, that portion of the body which is supplied by nerves coming from below the injury is paralyzed, having neither motor nor sensor power.

PERIPHERAL NERVOUS SYSTEM.

UNDER the peripheral system are included the special organs of sense, — the five senses which furnish the means by which we receive knowledge of the outer or physical world, namely, sight, hearing, smell, taste and touch. These senses are the doors and windows which reveal to us our physical environment. They are the, "Five temple gates open outward into high-ways which extend to the world of form, and through them, messages and freights are going and coming in endless succession."

The sense of sight is controlled by the optic nerve. Atmospheric vibrations are carried to the brain and translated into hearing by means of the auditory nerve. The olfactory nerves transmit the sensation of smell; the gustatory that of taste; while the tactile nerves transmit to the brain the sensation of touch. These nerves, sometimes called the nerves of external sense, have their central termination in the *sensorium, an aggregation of sense ganglia lying along the base of the skull, above the mouth, and back of the eyes.* These ganglia are partly included in the medulla oblongata.

While the action of the sensory ganglia is subordinated to that of the cerebrum, it still forms an important means of connection between the cerebrum on the one hand, and the organs of sense on the other, thereby bringing the mind into direct relation with the external world. The sensorium is a center for reflex movements, and its offices are to form sensations from the impressions brought by the several nerves of sense; to transmit, by ascending fibers, these sensations to the cerebrum; and to convey, through descending fibers, the result of cerebral activity back again to the nerves of special sense and motion.

In Responsive Drill, we are educating the body to expressiveness by securing reflexes, particularly through muscular sense and the special senses of sight and hearing, and are thus intimately concerned with the nerves of the peripheral system.

MUSCULAR SENSE.

Muscular sense is that sense by which a person becomes cognizant of the condition of his muscles. Our ordinary movements are governed by muscular sense, or "by a feeling of the condition of the muscles that comes to us through their own afferent nerves." We become cognizant of muscular sense only when our attention is directed to it.

Muscular sense is closely related to the sense of touch, and is considered in some physiologies under that head. The sense of touch is due to several sensations, which are occasioned by objects that are smooth, rough, hot or cold; while muscular sense involves the idea of weight, size, equilibrium and resistance, as the last is suggested by the qualities of hard and soft.

Resident in the organic structure of the body itself, is a tendency to unity of muscular action. When any set of muscles is called into activity, as in taking a given position in the Responsive Drill, other groups volunteer their assistance, and work in harmony with their leader as if there were an understanding among them to produce a unified effect. La Grange in his "Physiology of Bodily Exercise" states it thus: "A stimulus applied to a single, localized part of the brain, can produce contractions of several groups of muscles at once. We see, then, that owing to a peculiar anatomical arrangement, a great number of motor nerve fibers radiating toward different muscles, can start from the same very limited area of cerebral substance. In this manner a stimulus which acts upon a very small surface of an organ can be simultaneously transmitted to several groups of muscles, just as, by means of the multiple communication established by a network of wires, a single button can throw into action the bells of several electric apparati."

Muscular sense is one of the most important avenues of knowledge. It is intended by nature to be a valuable servant of the mind, and should therefore be educated. It is through this sense that the minds of idiot children are first appealed to. One of the earliest exercises given them, is the fitting of a certain number of blocks into a box made especially for them. This has to be repeated day after day, the teacher taking the powerless hand in her own and performing the action for the child, in order to awaken the muscular sense. When the child can do this himself, it proves a notable advance in mental as well as muscular development. Some have called muscular sense "mind in muscle," certainly it agrees with and serves the intellect.

Through the culture of muscular sense, one learns to accomplish work with economy of effort. Watch the movements of a novice in learning the work either of an artist or of an artisan; they are characterized by uncertainty, effort, and a multitude of unnecessary strokes, which do not serve to fulfill the desired end. By frequent repetition, the muscular sense becomes educated, and economy of effort is the result. Then every stroke serves to reveal the idea or plan, which the artist or artisan is seeking to reveal.

We depend upon muscular sense much more than we are aware. Without the aid of this power of the muscles we could not accomplish any piece of physical labor; we could not swim, dance, ride a wheel, walk, write, or row, etc. When any new muscular exercise is demanded, a new co-ordination of muscles must be formed. When a landsman goes to sea, as the ship moves he can hardly keep his feet, but when he acquires his "sea-legs," he can easily adapt himself to the frequent alterations in the line of direction in his frame. When the sailor first treads upon firm earth, his muscles, which have been trained to maintain the equilibrium of the person on a shifting surface, must again be trained to poise on a stable surface.

It is a well-trained muscular sense which enables one to stand erect or to poise with certainty and precision. It is well trained muscular sense which enables the pianist to play a musical composition with which he is perfectly familiar, while he carries on a conversation with a friend, or while he is engaged in some train of thought foreign to that which the composition suggests. It is a well trained muscular sense which enables a juggler or "slight of hand" performer to become master of his art.

"This muscular sense," writes Dr. Foster, "using the term in its broad meaning, enters largely into our life. By it we are not only enabled to co-ordinate, and execute adequately the various movements which we make, but through it we derive much of our knowledge of the external world. Through it we are also conscious of the varying condition of the several parts of our bodies, even when the muscles are at rest; the tired and especially the paralyzed limb is said to 'feel heavy.' In this way the state of our muscles and other tissues largely determines our general feeling of health and vigor, of weariness, ill health and feebleness."

Muscular sense is termed the "guiding sense" because of the part it plays in guiding or directing muscular action. In walking, a familiar example of reflex action through muscular sense, the action is guided and "sustained by the successive contact of the feet with the ground, from which contact muscular sense is aroused, each contact exciting, and guiding by reflex action through the muscular sense, the next action." Placing the hand, fingers, arm, head, or any portion of the body in any position, as in Responsive Drill, arouses a muscular sense which with due expectant attention occasions and guides the action of other muscles necessary to the maintenance of perfect unity.

It has been said that no voluntary act can be made or sustained without the aid of a guiding sensation, in most cases that sensation being in the muscles. In the movements of the eyeball, and in the vocal apparatus, however, the action is not guided by the muscular sense, but, in the first case, by the visual, and in the second, by the auditory sense, which is awakened by a mental concept of the tone to be uttered. A person born deaf and dumb may have perfect organs of articulation and voice production, and yet be unable to speak; for when there is no mental concept of sound, there can be no adjustment of the muscles of the vocal organs necessary to the production of tone, without guiding sensation of another kind. By careful training of the vocal organs, through *the aid of muscular sense*, those born deaf may acquire the power of speech.

When the guiding sense of the muscles is destroyed or lost, the sense of sight may sometimes take its place. An interesting case is related of a woman who had lost all sensation in one arm, retaining its motor power only. She could not hold her child on her arm unless she constantly looked at it. If her eyes were turned away for even a moment, the child fell, in spite of her knowledge of the fact that it was on her arm. The muscular sense being entirely lacking, the sense of sight took its place in guiding the motor power. In partial paralysis of the leg, the muscular sense being partly gone, the sense of sight aids in placing the foot or leg in the position necessary for taking a step. As has been before suggested, the will has to do with determining the result, but not with the nervous and muscular action necessary to carry out its mandates.

It sometimes happens that the sense of sight, instead of aiding and guiding, is a hindrance to the maintenance of equilibrium, and our movements become uncertain and often disastrous. Although we may walk with ease a narrow plank placed upon the ground, yet if it be elevated to a considerable height, though perfectly well supported, the sense of sight makes the mind realize the danger of the situation, and there is a consequent unsteadiness in our movements and a fall may ensue. This is why the blind can sometimes climb the dizzy heights of mountain peaks better than those who possess the sense of sight. Dr. Campbell, the founder of the Royal Normal School for the Blind, in England (himself totally blind), climbed the highest points of the Matterhorn ever reached by any traveler, thus, "preaching a sermon for the education of the blind from the highest pulpit in Europe."

Blondin, the famous tight-rope walker, not only crossed Niagara Falls on a rope eleven hundred feet long and one hundred and sixty-five feet above the water, but also carried men over on his back. A person who knew him intimately said: "Blondin was absolutely without nervousness or fear when on the rope. When asked if the rush of the water did not make him dizzy, he replied, 'It might if I saw it, but I never look down, for if I did I should be lost.' 'But how do you know where to place your feet?' 'Oh, I let my feet take care of themselves,' was the reply." So he did, — let not only his feet, but his entire body take care of itself. In other words, his entire body was cared for by reflex action through muscular sense. Trusting to the supreme Guiding Power manifested through the physiological laws of the human body, he was led in safety over the surging waters.

Professor Halleck says, "With every change of movement there is a change of muscular sensation." Muscular sense produced in one set of muscles will cause a response, through the law of reflex action, in other groups of muscles until all act from the same impulse, thereby producing co-ordination and unity of movement.

In the reflex gained from a given position in Responsive Drill, there is a report of an automatic prompting which comes from an inward stimulus of the nerves as well as a report of the reflex action through muscular sense. In other words, reflex action through muscular sense is modified by the personality of the individual, by the condition of the body, by the degree of expectant attention, as well as by the nature and intensity of the stimulus. Therefore the attitude gained from the reflex of a given position in the Responsive Drill, while revealing the same general tendency in all students, differs because of the individual characteristics; an active, nervous temperament exhibits a reflex through muscular sense that a slow, phlegmatic temperament would not exhibit.

Perfect unity and co-ordination of the muscles can be secured only by reflex action through muscular sense. Not till there is perfect obedience, through muscular sense and reflex action, to the law of equilibrium, does man's physical being become literally the servant of the soul, obeying its mandate through a law of its own structure, without requiring the interference of care and judgment. Its cultivation is therefore most essential to unity and effectiveness of expression.

In the study of Gesture we are dealing with a profound subject, one which leads into the vast, limitless expanse of the field of expression, or the revelation of mind through the human organism. Emerson says, "No object really interests us but man, and in man only his superiorities; and though we are aware of a perfect law in nature, it has fascination for us only through its relation to him, or as it is rooted in the mind."

SYMPATHETIC SYSTEM.

We will now turn to the consideration of a few simple facts concerning the sympathetic system or that portion of the nervous system which is classed under the apparatus of organic life.

The sympathetic nervous system consists of a double chain of ganglia lying partly in front, and partly on each side of the spinal column. These ganglia are connected with each other and with the cerebro-spinal nerves. They receive nerve fibers from the cerebro-

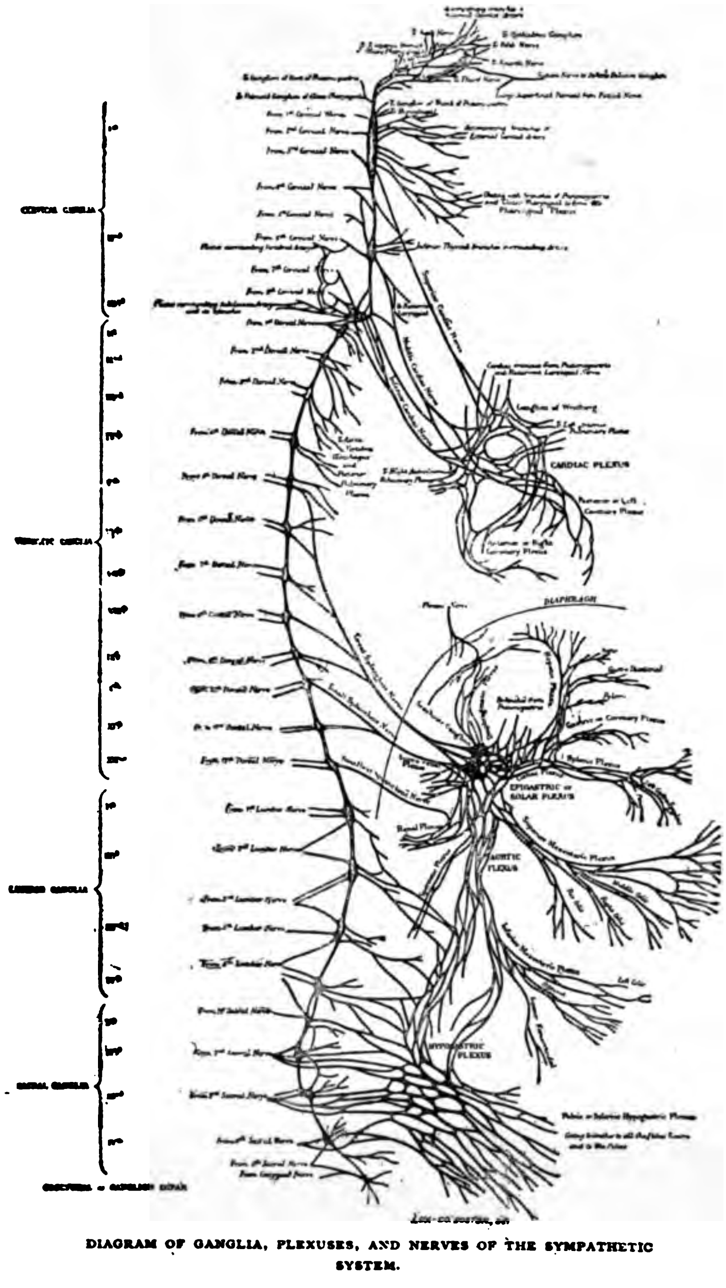


DIAGRAM OF GANGLIA, PLEXUSES, AND NERVES OF THE SYMPATHETIC SYSTEM.

spinal system, and send nerve fibers to it. The sympathetic nerve is distributed to the organs in the viscera, and to the muscular coating of the blood vessels.

The three principal ganglia are the solar plexus, the cardiac plexus, and the hypogastric plexus. The solar plexus or "abdominal brain" clusters around the coeliac axis (an artery which arises just below the diaphragm and divides into three large branches, the gastric, the hepatic and the splenic, thereby supplying the stomach, liver and spleen with blood); and it is also distributed to the abdominal arteries, the muscular walls of the intestinal canal, and to the glandular organs in connection with it. The cardiac plexus is situated in front of the division of the trachea and behind the arch of the aorta, and is connected especially with the heart and blood vessels. The hypogastric plexus is in the region of the pelvis. These ganglia are all intimately connected with the spinal system, the nerves of the two systems being braided in with each other, and so closely interwoven as to constantly affect each other.

The sympathetic system is not directly affected by the will, but is greatly influenced in its action by the *emotions*. It has been called the "nerve of emotion," for careful examination proves that whatever affects the feelings affects this nerve, and through it all the vital processes of the body. Generally in literature, the heart is referred to as the seat of the feelings. Every one recognizes the "sinking feeling" caused by hearing some bad news, or the rapid beating of the heart in some great emotional excitement. Claude Bernard even goes so far as to say that the least excitement reacts upon the heart, and when the mind is strongly excited, it might be expected that it would instantly and directly affect the heart. He also says that when the heart is affected, it reacts upon the brain, and that this condition of the brain again reacts through the pneumogastric nerve upon the heart, so that under great excitement there is much mutual action and reaction between brain and heart. This action and reaction also takes place between the cerebrum and all other vital organs. In fact, it is a question whether all thinking does not in some way affect the vital organs.

As we have seen, the sympathetic nerve affects the vital functions, while itself is powerfully affected by the emotions. The nerves are the medium through which the ever in-dwelling soul directs, regulates, sustains, and prompts the powers of the body. The influence of the nervous system is exerted not only upon the motor and contractile tissues of the body, but it has a direct operative influence upon the organic functions, especially those of nutrition, secretion and circulation. As we have learned, it can only be through the nervous system that the vital organs are acted upon by the states of the mind. "Although no exertion of the will can produce any direct effect upon any part of the sympathetic system, there are various organs whose muscular walls are influenced, on the one hand by the emotional states, and on the other by the state of expectant attention."

A distinguished scientist says, "The influence of the state of *expectant attention* in modifying the processes of nutrition and secretion, is not less remarkable than in the production of muscular movements. It seems certain that the simple direction of the consciousness to a part, independently of emotional excitement, but with the expectation that some change will take place in its organic activity, is often sufficient to induce such an alteration, and would probably always do so if the concentration of the attention were sufficient . . . there is scarcely a malady in which amendment has not been produced, not merely in the estimation of the patient, but in the most trustworthy opinion of medical observers, by practices which can have no other effect than to direct the attention of the sufferer to the part, and to keep alive his confident expectation of the cure."

It is an accepted fact that certain states of mind are conducive to disease, and it is easy to argue from this, that certain other states will produce health. If wrong states of mind, as has been proved, will produce in the system a deadly narcotic poison that brings on death in a short time, what may not right states of mind do toward fighting, yea even overcoming, disease? Wonderful stories have been related of faith cures and mental healing, and almost no story is too great to be believed by one who has given scientific study to the effect of the sympathetic nerve upon the body in its various functions; the effect of the emotions upon this nerve, and the relation of the emotions to the intellect.

Psychology teaches that the intellect furnishes the *occasion* for all emotions. If the intellect acts in a certain way, certain emotions are sure to follow, and these emotions react upon the sympathetic nerve. If a person has thoughts that occasion deep depression, deep suffering, the normal activity of the sympathetic nerve is affected, and the result is that the person grows thin, the cheek loses its color, and health no longer sparkles in the eye. Any thought that takes away hope, takes away from the power of nutrition. Any thought that occasions anger, injures the condition of the blood. Some thrilling facts have been noted by physicians where death, and that in a very short time, was traceable to a narcotic poison in the blood, which had been generated by anger. To quote from a well known physiologist on this subject, "There is abundant evidence that a sudden and violent excitement of some depressing emotion, especially terror, may produce a severe and even fatal disturbance of the organic functions, with general symptoms so strongly resembling those of sedative poisoning as to make it highly probable that the blood is directly affected by the emotional states, through the nervous energy."

Professor Gates, of the Smithsonian Institute, is reported as saying, "Bad and unpleasant feelings create harmful chemical products in the body which are physically injurious. Good, pleasant, benevolent and cheerful feelings create beneficial chemical products which are physically healthful. These products may be detected by chemical analysis in the perspiration and secretions of the individual." Fear is the foe of man,—the foe of his intellect, the foe of his health. Faith is the friend of the feelings and the antidote for the poison engendered by fear. Faith gives a healthy flow to the blood; suspicion, envy and jealousy poison it. Serenity of mind is as necessary to health as oxygen to life. God has planted in the human constitution an instinct towards health, both in the selection of nutrition and in the tendencies of mind.

When Paul was being taken a prisoner to Rome he was shipwrecked, but came safely to land." The bar-

barous people showed him no little kindness; they kindled a fire because of the rain and cold. "And when Paul had gathered a bundle of sticks and laid them on the fire, there came a viper out of the heat and fastened on his hand." The natives stood aghast; they knew what the inevitable result would be, for they had seem many of their comrades die from the deadly effects of the viper; but behold, "He shook off the beast into the fire and felt no harm." He had believed and followed a certain Teacher who, in speaking of His followers, had said, "They shall take up serpents, and if they drink any deadly thing, it shall not hurt them." His faith, which was the "substance of things hoped for, the evidence of things not seen," was more effective toward health than the poison was towards disease.

The study of the future in regard to health will be the study of psychology quite as much as of physiology. The laws of physiology can never be set aside or ignored, but psychical study and research will develop much added knowledge in the prevention of disease and the promotion of health. There is a very intimate relation between the states of the mind and the states of the body, and there is a very intimate relation between right states of mind and right states of body, — between goodness and health.

Christ, "When he was demanded of the Pharisees, when the kingdom of God should come, answered them and said, The Kingdom of God cometh not with observation: neither shall they say Lo here! or lo there! for, behold the Kingdom of God is within you." "In him we live and move and have our being," therefore health is a part of the kingdom of God, and when any one thinks to find health here or health there, in this thing or that thing, he should say to himself, *The Kingdom of Health is within me.*

Anything that points to truth, hope, faith, love serenity, makes for the welfare of the body. Man is a unit, and what is salvation for the soul is salvation for the body. Everything that tends to make a man more just, honest, kind, truthful, upright, tends to give him good health, enduring muscles, and powerful nerves. We need all that helps us to believe in an ever present, omnipotent God of Health. We need all that makes us feel there is more *for* us than there is against us, that there is more to *hope* for in the universe than there is to fear. We need more faith in a health-giving God, in a life-giving God, in a God who is Infinite Love and and Infinite Power.

ART MODELS.

ART is a fruit, — the fruit of the attempt of the soul to realize its ideals in the objective world. It speaks a universal language, and is valuable in just the ratio that it reveals nature and human life.

The office of art is to educate the perception of beauty; the artist being the prophet of beauty. Beauty shines in the stars of heaven and in "the dewy tear-drops of flower and leaf," but the average mind does not see it. The artist detaches these objects from the "embarrassing variety," and thus assists and leads the dormant taste.

When one is immersed in beauty, no one aspect of it is significant, but as soon as one part is lifted up, or has the emphasis of the artist's personality, that part becomes a revealer of nature's charms. This power of separation through elevation and suggestion is the essence of art. Browning says,

"We are so made that we love
First, when we see them painted, things we have passed
Perhaps a hundred times, nor cared to see;
. . . . Art was given for that;
God uses us to help each other so,
Lending our minds out."

One great value of the plastic arts lies in the fact that art is a history. In every age the artist's brush or chisel seems to have been held by a divine hand, writing the history of the human race. Every artist must of necessity express the spirit of the age in which he lives; not only so, he must of necessity reveal his own interior life and his relation to his environment.

An artist is not only an interpreter, he is also an historian, consequently the study of art involves not merely the study of the contour of the subject the artist presents, but the life and spirit of the artist, and of the age in which he lived.

We rejoice in that popular movement in the public schools of our leading cities, which is opening up art life to children. Reproductions of masterpieces in art, in such form as to be available to the masses, have marked a new era in art study. "Bare white walls, blackboards, maps, a calendar,—for years this has been the school room." This is rapidly being changed. Pictures adorn tinted walls, casts of famous pieces of statuary are placed in the niches and alcoves, and living plants fill the windows. The child is environed with beauty, and his mind quickly reacts upon it.

The value of an intelligent study of art, either from the original, or from reproduction, cannot be over-estimated. Art is expressive, "it is nature passed through mind and fixed in form;" mind alone can read it and explain it. "Art is the visible manifestation of the sublime and beautiful," the mind of the beholder looks through the form to the spirit.

The student of gesture is especially concerned with expression through the body. As a preparation for the proper interpretation of those gestures which result from spontaneous expression of thought, the study of sculpture and painting is especially valuable. The gestures of an orator are so complex, and follow each other in such rapid succession, that it is difficult to hold one of his attitudes or movements in the mind, but in the statue or painting, the emotion is represented in fixed form.

To the teacher of expression, study of this kind is most valuable, for it not only enables him to interpret the expression of works of art, but it also enables him to properly interpret the mental states of his pupils. Through this study, all manifestations of life become more significant. The eternal law of expression cannot be superseded, it cannot be circumscribed. We should train ourselves to be its truthful and faithful interpreters.

Art models also furnish ideals and criteria of beauty. We grow to be like the things we contemplate. "He that loveth, maketh his own, the grandeur he loves." The teacher of Expressive Physical Culture must have clearly in his mind definite ideals which he wishes to establish in the minds of his pupils; he must also know, and be able to impart, systematic methods which, if followed, will enable his pupils to realize these ideals.

Models of art train the mind to right standards of beauty, they furnish criteria by which to measure aesthetic values in the artistic world, and aid in one's own growth toward beauty. Plato says, "By beholding true beauty with the eye of the mind, we will be enabled to bring forth not images, but realities, and bringing forth and nourishing true virtues, to become the friends of God."

We will consider a few of the criteria of beauty as applied to the human form in bearing, attitude and movement. No attempt is made to give an exhaustive treatise on these criteria. They are briefly suggested for the purpose of leading the mind of the student to further study and investigation.

DOMINANT CENTERS.

By dominant center, is meant that point in any organism which, if controlled, involves the regulation of all subordinate to it. All the systems in the universe are governed by dominant centers. The planetary system is governed by its center, the sun, in harmonious obedience to which every planet revolves, as it moves in its orbit. In the structure and activities of the human body, this principle is manifested by the arterial system, the center of which is the heart, and by the nervous system, the center of which is the brain.

Man is so created that his mental faculties work best when controlled and directed by the moral sentiment. In expression, the chest is the dominant center of the body, as the moral sentiment is the dominant center of the character. In graceful movements, every part acts, not as an independent agent, but as a free and obedient servant to its controlling center. If the chest is well elevated and poised, and the head, arms, etc., move in harmonious obedience to it, the expression is not only one of physical poise and equilibrium, but of spiritual strength and certainty.

While the chest is the dominant center of the body as a whole, each agent has its dominant center which is subordinate in action to the center of the whole. *Graceful gestures are the result of movements made with reference to the center of the moving agent.* For illustration, when the arm, including the hand, is used as an agent of expression, the center of the forearm should seem to be the point of impulse. This principle is true in its application to all other agents of the body.

It is the nature of the parts to serve the whole, not to control. The arm should move as a servant of the chest, not as master, and so of all other parts. The hand should suggest skill, as distinguished from the force that impels. One of the pleasing effects of obedience to the law of centers is the appearance of strength of the centers and freedom of the surfaces.

This law of obedience to dominant centers is beautifully obeyed in the healthy little child, where beauty is the normal and natural state, untrammeled by self-consciousness and restraint. A pleasing illustration of obedience to the chest as dominant center of the body, is found in "Rural Music," by Ferdinand Laufberger (1829–1881), pupil of Prague and Rubens. In each of the charming child figures, there is an ideally graceful obedience to the center of the chest as the central impulse of movement, suggestive of the healthy freedom and joy of the nine tiny "rural muses."

RURAL MUSIC.

ECONOMY.

Obedience to the law of centers brings the appearance of ease in force, which is an expression of power. Unnecessary expenditure of force and undue attention to details offend the taste. In beauty there is always an element of economy; no more force being expended than is necessary to reveal the subject. The appearance of necessity is one of the criteria of beauty. Emerson says,— "Let us build altars to the Beautiful Necessity."

Economy should be thought of in reference to the agents used. All parts of the body are not always needed as active agents in the expression of an idea. In indicating a direction, for example, a glance of the eye might be sufficient, all the other agents remaining passive, seeming to realize the truth, "they also serve who only stand and wait." The swinging of the arms in walking is unnecessary and therefore ungraceful. The arms should neither be held constricted at the sides, nor should they be swung with energy. They should hang freely from the shoulders; except as it is necessary to use them in some exhibitions of balancing, when the appearance is graceful.

"Beauty is the purgation of superfluities," says Michael Angelo. What is necessary to the fulfillment of right ends is beautiful, and what is unnecessary to the fulfillment of right ends is not beautiful. Necessity is an element of *good taste*, which represents in art what is agreeable to the feelings.

Emerson again enunciates this law in the following words: "Beauty rests on necessities. The line of beauty is the result of perfect economy. The cell of the bee is built at that angle which gives the most strength with the least wax; the bone or quill of the bird gives the most alar strength with the least weight. There is not a particle to spare in natural structure. There is a compelling reason in the use of the plant for every novelty of color or form; and our art saves material by more skillful arrangement, and reaches beauty by taking every superfluous ounce that can be spared from a wall, and keeping all its strength in the poetry of columns. In rhetoric, this art of omission is a chief secret of power, and, in general, it is proof of high culture to say the greatest matters in the simplest way."

As an illustration of the principle of economy, we will consider the Madonna by the idealist Bouguereau (1825–).

This graceful and highly refined conception of the Madonna is sustained by an almost faultless execution; it is, "a beautiful painting and drawing together, to which, in background decoration of stone and marble, the artist adds the severer test of an architect."

The pictures of Bouguereau strike such a deep note in human nature that they appeal to the cultured and uncultured alike. Bouguereau always appeals to the heart of mankind. In his Madonna, he strikes common cords,— mother love, one touch of which makes the whole world akin, and also brotherly love, illustrated by the sweet childish affection between the Infant Christ and the young John. In Christ's face is a prophecy of what he will one day enunciate as one of the two commandments upon which hang all the law and the prophets, "Thou shalt love thy neighbor as thyself."

The law of economy is especially manifested by the position of John's arms as he embraces Jesus; in the way he stands, delicately poised upon one foot, while the opposite leg is absolutely free, with the toes lightly resting upon the dais. Again it is marked, in the delicate way in which the Madonna's instinct leads her to rest her cheek, which is the symbol of affection, upon her fingers, in sympathy with John, who presents his cheek to Jesus for his kiss of affection. No unnecessary action of any kind is represented in any part of the picture, only those parts being used that are necessary to represent the divine love which the group reveals.

SUCCESSION.

When it is necessary to use several agents for the expression of an idea, they should be moved in succession, or in opposition to each other. Shakespeare gives us a good idea of succession in expression, when Lady Macbeth says to her husband, "Bear welcome in your eye, your hand, your tongue." Here we have also a

VIRGIN, INFANT JESUS, AND ST. JOHN.

dramatic illustration of the principle in gesture that the response of the body to a state of mind precedes vocal response. A true orator's gestures always precede his words concerning the same idea.

If a person of culture hears a sound and wishes to see whence it proceeds, he first turns his eyes in the direction whence the sound seems to come; if he wishes to observe more fully, he turns his head in the same direction; and if he finds the object of sufficient interest, he turns his chest and finally his whole body toward the object. A person whose movements suggest vulgarity would be inclined to turn the body as if it were an undifferentiated mass.

A beautiful illustration of the law of succession is found in "Apollo and the Muses," the original of which is an easel picture in the Pitti Palace at Florence, painted by Giulio Romano (1492–1546), the most distinguished pupil of Raphael. Here all is complete and joyous abandon to the poetry of motion. If while looking at this picture you should listen to the music of the dance, the illusion produced would be almost perfect. Apollo is the center of the group, and inspired by his presence, in rhythmical succession dance his devotees. Each figure and all the parts of each, obey in their true sequence the painter's ideal of the love and worship of the Muses for Apollo.

"The Muses were the daughters of Zeus and Mnemosyne (Memory), their names and respective functions being: Clio, the muse of History; Euterpe, of Lyric Poetry; Thalia, of Comedy and Idyllic Poetry; Melpomene, of Tragedy; Terpsichore, of Music and Dancing; Erato, of Erotic Poetry; Calliope, of Epic Poetry; Urania, of Astronomy; and Polyhymnia (or Polymnia), of Singing and Harmony. Helicon, and the region round Parnassus, was the favorite seat of the Muses, where they were supposed, under the presidency of Apollo, to be perpetually engaged in song and dance, and in elevating the style and conceptions of their favorite votaries. Apollo, as patron and conductor of the Muses, was named Musagetes, 'Leader of the Muses.' They were generally represented as young, beautiful, and modest virgins, usually apparelled in different attire, according to the arts and sciences over which they presided, and sometimes as dancing in a

APOLLO AND THE MUSES.

chorus, to intimate the near and indissoluble connection between the liberal arts and sciences."

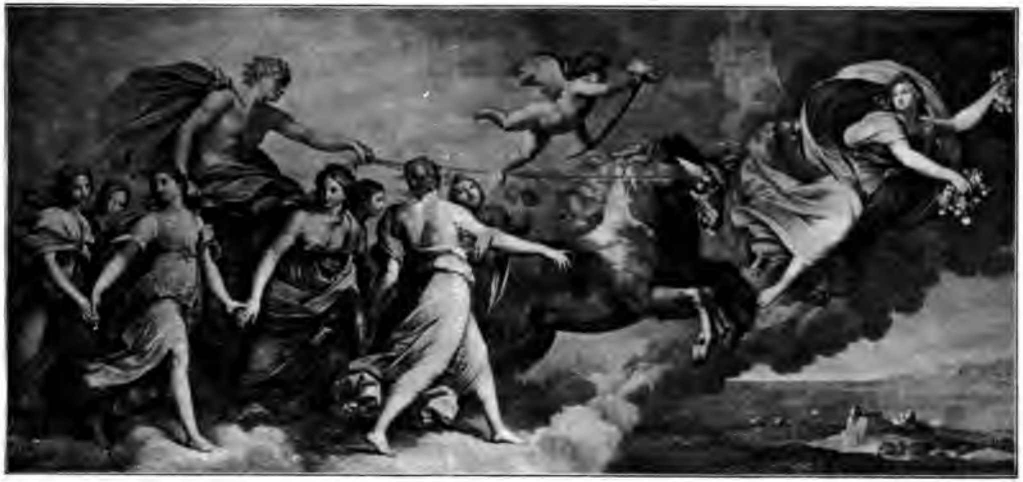
EQUILIBRIUM, OR OPPOSITION.

Different parts of the body aid each other in the attainment of any desired end, and for economic purposes opposing agents, when obeying the laws of beautiful expression, always suggest opposition to each other, which is a condition of equilibrium. When two agents move at the same time in the same direction, in a way to suggest parallelism, there is an indication of something farcical, or an element of insincerity.

A person whose bearing is in perfect equilibrium, gives a feeling of certainty and repose. This law appeals to the feelings perhaps more deeply than any other law of art, for it is the moral nature that demands and sustains perfect poise.

The Italian artist, Guido Reni (1575–1642), has given to Art one of the finest illustrations of equilibrium, secured by obedience to the principle of opposition.

Aurora, the goddess of dawn, is represented as the forerunner of the god of the sun. In this picture Aurora sails on golden clouds, before Phoebus, who is drawn in a chariot by four horses, and accompanied by Hours, hand in hand, encircling his car, while just above the heavenly steeds, the morning star is seen in the form of a cherub bearing aloft a flaming torch. The celestial presence of the goddess sheds light, beauty, joy, and happiness on the rejoicing earth below. The notable characteristic of the whole, as felt also in Romano's "Muses," is the wonderful sense of motion and fleetness which it imparts. We can almost feel the exquisite lightness and rhythm of the swiftly moving procession. It is interesting to note in this suggested motion, how each figure, as a whole and in detail, obeys the law of opposition. In Aurora herself, the agents suggest faultless opposition, maintaining the perfect ease, poise and equilibrium belonging to her character. The law is also clearly observable in the figure of the cherub, and can be followed out endlessly in the various figures.



AURORA.

SYMMETRY.

Ideals of symmetry are as necessary to the student of Expressive Physical Culture, as they are to the student of sculpture or painting. Ruskin says, "Symmetry is the opposition of equal quantities to each other. Proportion is the connection of equal quantities with each other." Proportion especially relates to size, weight or value. Symmetry might be said to involve proportion, relating to place, or balance between the parts. When this citerion is obeyed, there is adaptation of the parts to their service, and thus harmony of action is secured.

Physiologically considered, symmetry includes right form, size, position and relation of the different organs of the body, enabling each to act with greater power and freedom. Dr. S. S. Fitch says that "symmetry is the very keynote of health." Symmetry of body represents health of body; symmetry of character represents health of character.

In Greece the perfect physical man was the man

sentations of life; their eyes can see, their lips almost move, the bloom of their skin is exquisitely delicate, and their cheeks would be warm to the touch." Of the portrait of Queen Louise, Mr. Thompson says, "Here is an expression of the highest civilization through the most delicate medium of art."

In the queenly dignity, combined with the sweet and and tender womanliness of this portrait, we instinctively feel that symmetry of body which expresses symmetry of character. There is perfect proportion between the various parts, and perfect adaptation of the parts to their service, revealing outward harmony of movement as expressive of inner harmony of soul. We feel that she is one of whom the poet might have said: "When she had passed, it seemed like the ceaseing of exquisite music."

ILLIMITATION.

Great length of line suggests power, and is indicated by the way a line begins and vanishes. If it seems to begin or end abruptly, it signifies limitation or weakness.

Continuity of line suggests an unbroken line, and indicates harmony with the universal. A line that is unbroken and that reveals no beginning and no end, suggests that the thought which impelled it, is harmoniously related to Omnipotent Power, and therefore presents illimitation.

Dielman's symbolic picture, "Law." furnishes a good illustration of illimitation suggested by length and continuity of line. This is the more apparent, because of the emphasis brought out by the contrast between the figures on the right, and those on the left. The central female figure standing for Law, is a fine objective illustration of Browning's words, "All's love, yet all's law." The radiance which encircles her head seems to blend in with universal light, indicating her authority is derived from Infinite Wisdom, Love, and Power. Upon the left hand of the central figure, stand the violators, who illustrate the short and contorted lines of expression: their tendency being downward instead of upward, the limitation, antagonism of spirit, selfish purpose, and opposition to justice, are strongly felt. The attitude and bearing of the figures at the right hand of Law, suggest continuity, length of line, and corresponding illimitation.

The figure of Christ, in Heinrich Hofmann's (1824 –) "Christ and the Doctors," is a most suggestive illustration of illimitation. Wherever great spiritual truths are suggested, the atmosphere of illimitation will be felt. Here, in the presence of learned doctors, stands the dignified, nobly poised, Christ-child, with an expression of spiritual authority, and ideal beauty, beyond description. Note his graceful figure, resplendent with spiritual beauty; note his "delicate features and thoughtful brow, the wisdom and fire of his dark eyes, and the light of divine intellect upon his face." He is truth-commanded, and therefore the learned men about him listen with deep interest.

"Watch the expression of the doctors also. That profound thinker at the left . . . absently strokes his beard, resting his elbow upon the open book on the reading desk, while his deep-set eyes are fixed on the Child. Notice the look of interest and surprise on the face of the man just behind. . . . And the patriarch in the center, who leans upon a staff and listens with the shrewd, calculating air of one who would detect flaws in the reasoning of this eloquent young expounder of the law. See the fair-minded philosopher beside him, who interrogates Christ with earnest sincerity; and the sage seated in the foreground, with the book upon his knees, who, looking from the ancient prophecies to the Child marvels at his wisdom and his answers!" — (*Catholic World.*) The same illimitation which is shown in his expression, is indicated in his disputations with the doctors of law. It is this which creates the profound interest that is manifest in their faces and postures as revealed in the picture.

Illimitation of gesture indicates illimitation of thought. It was the Christ's illimitation of thought which created his illimitation of expression.

Curves are necessary in representing either continuity, or length of line. "Generally, in all ruin and disease," says Ruskin, "wherever one order of being interferes with another, curves vanish and unmeaning angles take their place."

Professor Raymond, in his "Comparative Aesthetics," says, "We shall find that in the degree in which man's

CHRIST AND THE DOCTORS.

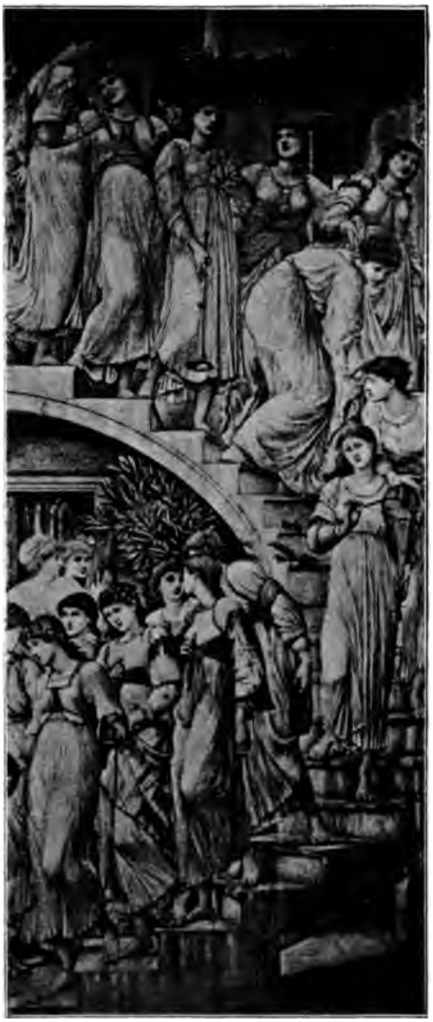
expression is instinctive, in the sense of being spontaneous and unconscious, because uninfluenced or unimpeded by conditions that come from without, his gait, postures and gestures all tend to assume the forms of free, large, graceful curves."

Only an arc may be given by the moving hand, arm, head, etc., but the arc being given, the imagination completes the spiral. This idea is well illustrated in a charming child figure from Nausica, by E. J. Poynter, where the buoyant, joyous spontaneity of untrammeled child life, is expressed in unbroken lines and graceful curves, which suggest illimitation and freedom from all self-consciousness. Burne-Jones, in the "Golden Stair," suggests illimitation in architecture by placing groups of beautiful maidens upon a spiral stairway which seems to come from, and to reach into, an invisible realm, like the order of Melchisedec, described in Scripture, "having neither beginning of days, nor end of life." This picture also awakens the imagination concerning the idea of illimitation which is suggested in the theory of the cycles of evolution.

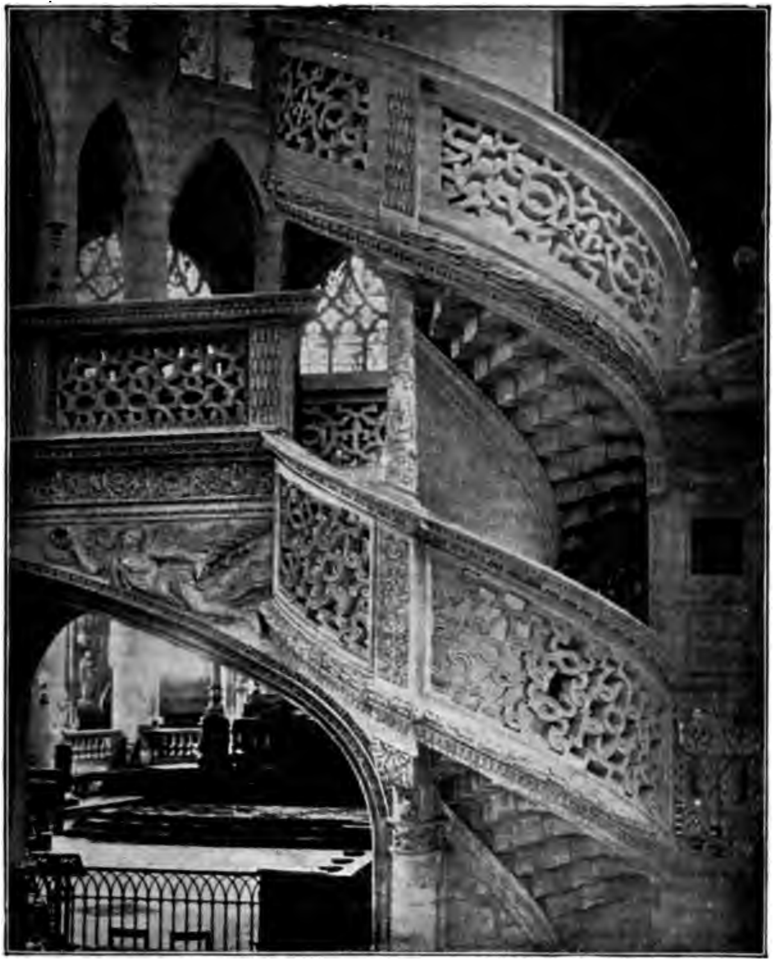
In the procession of maidens, the beginning and end of which we cannot see, there is a suggestion of countless numbers as they appear and disappear. Life is endless in the thought of the young, neither their bodies, nor their movements express hard lines of limitation. Burne-Jones himself has not told us why he has named the picture the "Golden Stair," but we shall not depart far from the truth, if it rests in our minds as an ideal picture of youth and beauty, health and joy.

Another beautiful illustration of the curve, is the staircase of St. Étienne du Mont, Paris. This church is one of the most interesting from an architectural point of view, in Paris. It is Gothic in style, disguised in the trappings of classical details. It fascinates by the artistic originality of its interior. To the rood-loft, a place where the gospel was sung, ascend two handsome staircases, which afford an excellent object lesson in curves.

Whatever in art satisfies the feelings, possesses an element or suggestion of illimitation, and this is why the curve that relates to the spiral appeals to love of the beautiful.



THE GOLDEN STAIR.



STAIRCASE, ST. ETIENNE DU MONT, PARIS.

(Courtesy of the Perry Pictures Company, Boston.)

A circle does not contain the element of progressiveness which a spiral does, and while the arc of a circle pleases, it does not satisfy unless it suggests the spiral. Forms of architecture like that revealed in the Church of St. Étienne, are always fascinating' because curves in arches, stairways, etc., predominate, and appeal to man's feeling concerning his natural relationship to his environment. Man is fascinated by that which reveals to him his own nature. All man's purposes, beliefs and feelings are occasioned by his relation to his environment. Beautiful gestures always suggest the spiral, which in its turn, suggests that the speaker's purposes, beliefs and feelings, are the result of his harmonious relation to his environment.

UNITY.

Says Ruskin, "All work which is not founded in unity, that is, the fit connection of all parts to a perfect whole, is false, and should be cast aside, as tares from wheat. We can only attain a nice consciousness of unity by a faithful study of nature."

Unity implies a oneness in the action of all the parts toward a common end. This oneness, or wholeness, is a universal law, and is manifest in every divine creation.

"The world globes itself in a drop of dew. The microscope cannot find the animalcule which is less perfect for being little. The true doctrine of omnipresence is that God reappears with his parts in every moss and cobweb."

In expression, the highest revelations of truth, come from the willing surrender of every agent to the service of imparting truth, beauty and good to other minds.

In the ripest age of Greek statuary, in every art creation, the whole is suggested by the parts. The greater the number of parts which appear in such relation to each other as to suggest that the parts serve each other, and thereby serve the whole, the more effective is the expression. Unity implies a oneness in the action of all the parts toward a common end. Among Michael Angelo's early works in stone, was the figure of a satyr, all parts of which expressed great age except the teeth; these were in perfect rows.

His master pointed out this inconsistency, and Angelo, with a few blows of his instrument, made the teeth jagged and uneven, so that all parts agreed in revealing the same idea.

Unity in art is the whole suggested in each of the parts. There is very little value in the position or movement of any one part alone. Parts do not become mediums or channels of expression, until they are seen in relation to each other. All expression, in whatever form, is born of relationships.

When an overwhelming idea takes possession of the soul, all the agents of expression are surrendered to it. An impressive illustration of this unity of expression, is found in the painting, "Joan of Arc, Listening to the Spirits," by Benouville (1820–1859), whose paintings are strong in the representation of the religious sentiment. The whole soul of the peasant girl is baptized with the purpose to protect and befriend her beloved France. As she listens to the holy voices, her eager upturned face, wide eyes, parted lips, close pressed hands, indicative of her strengthening resolve, the subtile expression of the feet, her whole rapt being, all bespeak one idea, — her devotion to her country and her king, and her resolve to defend them.

The following is quoted from an interesting article in the Bay View Magazine on "The National Hero of France," by Charles Morris. "At the hour of noon, on a sunny summer's day in the year of our Lord, 1425, a young girl of the little village of Domrémy, France, stood with bent head and thoughtful eyes in the small garden attached to her father's humble home. Her parents were peasants, her occupation was one of constant toil, her attire was of the humblest, her life had been hitherto spent in aiding her mother at home or in driving her father's few sheep afield. . . .

"The story of the suffering and peril of France was in all French ears. Doubtless little Joan's soul burned with sympathy for her beloved land as she moved thoughtfully up and down the garden paths, asking herself if God could longer permit such wrongs and disasters to continue.

"Suddenly, to her right, in the direction of the small village church, Joan heard a voice calling her, and, looking thither, she was surprised and frightened at

JOAN OF ARC.

seeing a great light. Again and again came to her the voices and the forms; they haunted her; and still the burden of their exhortation was the same, that she should 'go to France to deliver the kingdom.'

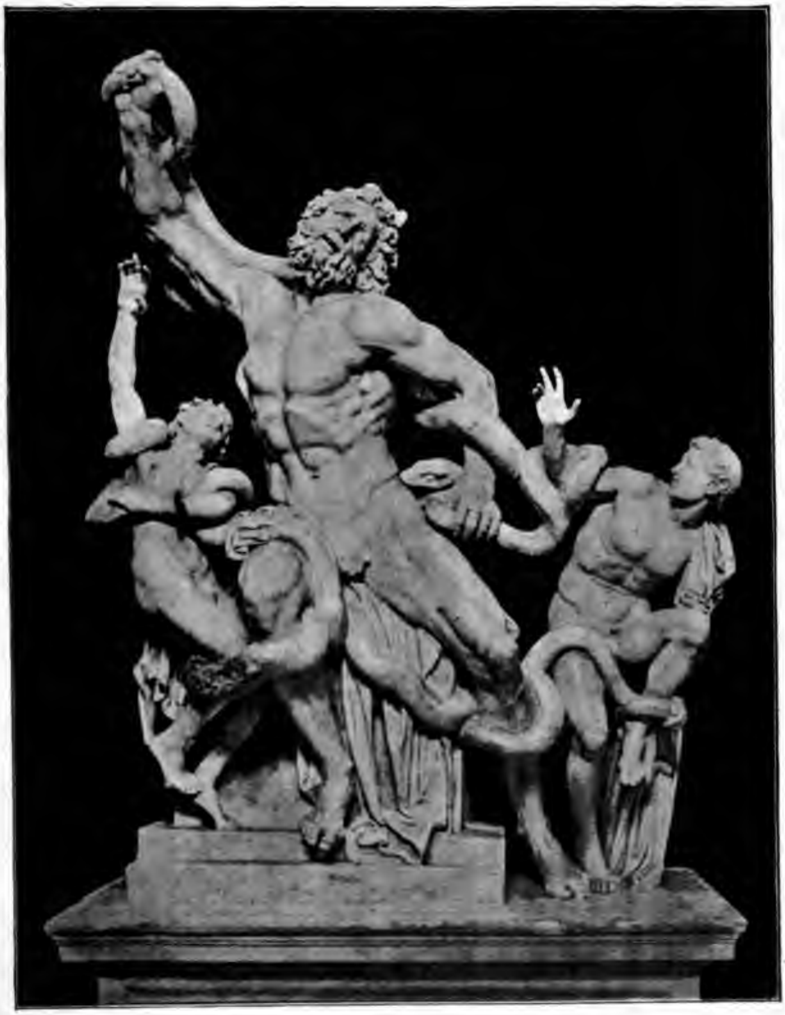
"Tears were in her eyes; in the innermost parts of her being she felt the quickening of a new birth unforetold—the birth of patriotism. To her had come the archangel Michael with the message of the 'great pity which was for the kingdom of France.' He had marked her forehead with the seal of her divine mission, and had said, 'Thou shalt save France.' 'Messire,' answered the child, 'I am but a poor child of the fields; neither know I to mount a horse, nor yet to lead the men-at-arms.' 'God will aid thee,' the angel had responded.

"Three years passed away. Joan's faith in her mission had grown with the years. Some ridiculed, many believed her. The story of her angelic voices was spreading. At length came the event that moved her to action. The English laid siege to Orleans, the most important city in the kingdom after Paris and Rouen. If this were lost, all might be lost. Some of the bravest warriors of France fought in its defense; but the garrison was weak, the English were strong, their works surrounded the walls; daily the city was more closely pressed; unless relieved it must fall.

"'I must go to raise the seize of Orleans,' said Joan to Robert de Baudricourt, commander of Vaucouleurs, with whom she had gained speech. 'I will go, should I wear off my legs to the knee.'"

The painter, Benouville, has vividly portrayed the expectant attention and complete concentration of mind with which the girl listened to and obeyed the voice of 'her Lord.' The perfect unity here portrayed, furnishes an explanation of the marvelous power and success which attended her, and made her, as a French writer has said, "the most perfect figure of our history, the one altar before which men of all opinions bend the knee, the patron saint of our country."

Unity in variety is revealed by the true relationships existing among a number of agents of expression. Many agents may be used in the revelation of one idea, and, other things being equal, the greater the number, the more powerful is the expression. This principle is



LAOCOON.

remarkably well illustrated in the well known Laocoön Group. The story of the death of Laocoön, and his sons, is best known as it is related in Virgil's story of the Trojan War. Laocoön, a Trojan Priest, had advised his people to have nothing to do with the wooden horse left by the Greeks, outside the city, when they pretended to sail away. But the people, believing that they were delivered from war, carried the horse into the city amid sacrifices and feasting. With the assistance of his sons, Laocoön was offering sacrifices, when two enormous serpents rushed from the sea and coiled themselves about the priest and his sons. The serpents were supposed by the Trojans to be the visitation of the anger of the Greek god Apollo, because Laocoön, in advising his people to leave the wooden horse outside the city, had advised against the Greeks.

The death agony of the father and sons in the folds of the serpent, is vividly set forth in marble, by the Rhodian sculptors, two brothers, Agesander and Athenodorus, whose names, with the date, first century B. C., are found in the Greek inscription on the group.

Pliny describes, as one of the most wonderful works known to him, a marble group of Laocoön and his sons, that stood in the palace of Titus on the Esquiline. Inasmuch as the group was found in 1506 on the site of the palace mentioned, and is the only known group representing the subject, there can be little doubt that it is the work to which Pliny alluded.

Notwithstanding the imperfection in the restoration of the right arm of Laocoön, and the right arm of his youngest son, as outlined by some art critics, it is undeniably one of the most extraordinary pieces of art, either modern or ancient, now extant.

It presents a striking illustration of the principle of Variety in Unity, the central idea being unmistakably revealed, through every agent of expression, and every part eloquently telling the same story. It further illustrates the universally accepted idea that unity in expression *results from feeling.*

Another interesting study of variety in unity is found in Plockhort's (1821–) attractive painting of "Christ Blessing Little Children." As if in response to His words, "Suffer little children to come unto me, and forbid them not, for of such is the kingdom of

CHRIST BLESSING LITTLE CHILDREN.